JOURNAL
OF THE
WASHINGTON ACADEMY OF SCIENCES

VOL. 45 JUNE 1955 No. 6

ANNOUNCEMENT OF ELECTION OF EDITOR

From time to time special committees have studied ways and means whereby the Journal of the Washington Academy of Sciences could better serve its members. Last year a new committee was appointed by President Defandorf. Under the chairmanship of Dr. Frank L. Campbell a comprehensive study was made. As an outgrowth, the Academy recently voted to change Article III, Section 5, of the Bylaws. This provides means whereby there could be continuity in the offices of the Editor and three Associate Editors.

In order to provide time for the selection of a new Board of Editors and also for this Board to formulate new plans for the Journal, an interim Board of Editors, appointed under the old bylaw, with Dr. Richard K. Cook as Senior Editor, is editing the Journal for 1955. The latter Board is putting into effect certain recommendations of the Campbell committee. Their plans were set forth in the May issue. The new Board, however, will have freedom to develop and submit to the Board of Managers any policy it so desires.

At the meeting of the Board of Managers, April 19, 1955, Dr. Chester H. Page was elected Editor of the Journal. Dr. Page and the three associates to be elected will assume responsibilities of the editing of the Journal with the January number for 1956.

We look forward with anticipation to a Journal that will be of scientific interest to all members of the Academy.

With this note, Dr. Page is submitting some of his plans for the Journal.

MARGARET PITTMAN, *President*

MESSAGE FROM THE EDITOR-ELECT

Although I do not assume editorial responsibility until several months hence, I welcome this opportunity to make known my philosophy and request the support of potential authors.

I feel that the Journal of the Washington Academy of Sciences is the property of the Academy members and is their representative in the scientific world. The content of the Journal should reflect the professional achievement level of Academy membership and the diversity of scientific endeavor. The property right carries both privilege and responsibility.

One *privilege* of Academy members is prompt publication of short research papers and preliminary announcement of discoveries. The correctness of such papers is the authors' responsibility. Editorial review will be for suitability and value. The main *responsibility* of members is to promote their Journal. This implies the contribution of papers that will interest the reader, not the author alone.

Economic competition and the modern emphasis on efficiency have led to more and more specialization, with the result that we have few "scientists," but many specialists in very narrow phases of science. The lack of generalists and the lack of effective communication between specialists of different faith have been an administrative annoyance in many institutions. From the Academy viewpoint, it tends to make the Academy a collection of societies, rather than a society in itself. More cross-fertilization and education are needed. It is trite to say that our highly specialized scientists are frequently uneducated, but it is unfortunately true. For example, geneticists and quantum mechanical physicists have much in common in their philosophy and methods, yet few of them realize it, and even fewer ever read any of the other's papers. It is true that we have borderline and two-discipline fields, such as biochemistry, the physics of viruses, etc., but we need papers on the elements and

methods of various sciences that will be interesting to specialists in other branches. It is an Academy responsibility to foster its own education. When we begin to understand what the other fellow is doing, and why, then will we be scientists.

Part of the social obligation implied by the above paragraph can be fulfilled by dissemination of *suitable* news of scientific activity in the Washington area, and part of it by publication of summaries of general interest papers delivered before the Academy or its member societies, but most of the fulfillment will depend upon the successful solicitation of appropriate papers from our members.

In keeping with the above philosophy, I shall publish research papers as research papers, long or short. The number and length of unreviewed short research papers may have to be limited for budgetary reasons. The exact policy will be dictated by experience. Normal length research papers will be subject to standard referee procedure, and no guarantee of publication is offered. Papers in the physical sciences are especially sought, to balance the Journal content with the proportionate member interest.

The scientific news column initiated by the present editors will be continued as long as reader response warrants. Any correspondence from readers that seems to be of general interest, will be published in an occasional "Correspondence" section. Although this section may be blank for long periods, its existence offers a forum for discussions of general interest; here, too, your editor has the responsibility for inclusion or deletion.

CHESTER H. PAGE

MATHEMATICS.—*Table of characteristic values of Mathieu's equation for large values of the parameter.* GERTRUDE BLANCH, Wright Air Development Center, and IDA RHODES, National Bureau of Standards. (Communicated by R. K. Cook.)

(Received February 28, 1955)

This paper is dedicated to Dr. LYMAN J. BRIGGS, *whose sympathetic encouragement and generosity of spirit gave the much needed impetus to mathematical computing in this country.*

1. BASIC EQUATIONS AND SCOPE OF TABULATION

The present work completes the tabulation of characteristic values of Mathieu's equation, for orders r less than or equal to 15, and supplements the tables published[1] in [5]. For ease of reference, basic definitions and formulas that will be required subsequently are given below. Detailed derivations and historic background can be found in [3] and [4].

Mathieu's equation can be written in the form

$$y'' + (b - s\cos^2 x)y = 0. \tag{1.10}$$

For a fixed value of s, there exists a countably infinite sequence of *characteristic* values b, corresponding to which the solutions y are periodic, and of period π or 2π. The set of characteristic values giving rise to even periodic solutions of the form

$$y = \sum_{n=0}^{\infty} A_{2n}^{(r)} \cos 2nx; \tag{1.11}$$

$$y = \sum_{n=0}^{\infty} A_{2n+1}^{(r)} \cos (2n + 1)x \tag{1.12}$$

will be denoted by $be_r(s)$, $r = 0, 1, 2, \cdots$ Similarly, the characteristic values giving rise to odd periodic solutions of the form

$$y = \sum_{n=0}^{\infty} B_{2n}^{(r)} \sin 2nx; \tag{1.13}$$

$$y = \sum_{n=0}^{\infty} B_{2n+1}^{(r)} \sin (2n + 1)x \tag{1.14}$$

will be denoted by $bo_r(s)$. When no ambiguity is likely to arise, the superscript attached to the coefficients will be dropped, for the sake of simplicity.

The coefficients in (1.11)–(1.14) satisfy

[1] Numbers in brackets refer to items in the bibliography.

3-term recurrence relations, and the characteristic values are therefore conveniently obtained by means of continued fractions. Let us define the following:

$$V_m = (4b - 2s - 4m^2)/s\,;$$

$$Ge_m = A_m/A_{m-2}\,; \tag{1.15}$$

$$Go_m = B_m/B_{m-2}\,,$$

where $b = be_r(s)$ or $bo_r(s)$. Further, wherever the same formulas apply to both Ge_m and Go_m, both will be denoted by G_m. The following can be readily verified:

$$Ge_2 = V_0\,; \qquad Ge_4 = V_2 - \frac{2}{G_2} \tag{1.16}$$

$$Ge_3 = V_1 - 1\,; \qquad Go_3 = V_1 + 1 \tag{1.17}$$

$$1/Go_2 = 0\,; \qquad Go_4 = V_2\,. \tag{1.18}$$

For all four types

$$G_{m+2} = V_m - \frac{1}{G_m}\,, \qquad m > 4. \tag{1.19}$$

It follows that each G_m is expressible by two types of continued fractions, namely one in terms of G_{m+k} (type 2) and the other in terms of G_{m-k}, $k > 0$ (type 1). The continued fraction of type 2 can be written as follows:

$$G_m = \frac{1}{V_m - G_{m+2}} = \frac{1}{V_m - \dfrac{1}{V_{m+2} - \dfrac{1}{V_{m+4} - \cdots}}}\,. \tag{1.20}$$

When s is small with respect to r, the characteristic values can be computed from a relatively simple power series in s, [3], [4], [5]. Similarly, when s is large with respect to r, the following asymptotic formula is available:

$$be_r(s) \cong bo_{r+1}(s) \cong \nu\sqrt{s} - \frac{(\nu^2+1)}{8} - \frac{(\nu^3+3\nu)}{2^6\sqrt{s}} - \frac{(5\nu^4+34\nu^2+9)}{2^{10}s} - \cdots, \tag{1.21}$$

where $\nu = 2r + 1$.

The most extensive table of characteristic values now available is that given in [5] for $r \leq 15$ and $s \leq 100$. An examination of the tables show that for s in the neighborhood of 100, (1.21) yields about five decimals, when $r = 0$ or 1, and gives progressively poorer results for large orders; when r is larger than 8, it is not possible to obtain even the first significant figure from (1.21). In view of the importance of the characteristic values, the present table is now being made available. From it the characteristic values of orders no higher than 15 can be obtained for any value of s between 100 and ∞.

An inspection of (1.21) suggests that for large values of s the parameter $t = 1/\sqrt{s}$ might be a useful one; it was therefore chosen as the independent variable for this table. Moreover, since b becomes infinite with $\nu\sqrt{s}$, the function to be tabulated should be one that is finite at $s = \infty$, and is simply related to b. The functions chosen are defined below:

$$Be_r(t) = be_r(s) - \nu_1\sqrt{s}\,; \tag{1.22}$$

$$t = 1/\sqrt{s}\,, \nu_1 = 2r + 1$$

$$Bo_r(t) = bo_r(s) - \nu_2\sqrt{s}\,; \tag{1.23}$$

$$\nu_2 = 2r - 1\,.$$

2. ACCURACY OF ENTRIES

The values in [5] are given to eight decimals, at intervals of the argument small enough to permit interpolation to about the same accuracy by Everett's formula stopping with second modified differences. Ideally it would have been desirable to give a similar tabulation for the range covered here, but the attainment of such an objective would have necessitated doubling the size of the present table. The chief aim of the authors was to produce a tabulation that showed the behavior of the characteristic functions over the entire range of s beyond 100 ($t < 0.1$). For this purpose the scope of the present tables seemed adequate. The intervals have been reduced to the point where interpolation with second and fourth modified[2] central differences, in conjunction with Everett's formula, will give the fullest attainable accuracy. For a few functions of

[2] The modified second and fourth differences are defined as follows:

$$\delta^{2*} = \delta^2 - 0.184\,\delta^4\,; \quad \delta^{4*} = \delta^4 - 0.20697\,\delta^6\,.$$

They are used exactly like ordinary central differences in interpolation.

low order fourth differences are unnecessary; the latter are given wherever they are required.

Although eight decimals are given in the entries, the last place is not everywhere reliable. The method of computation was such that for $t < 0.01$ only six decimals could be guaranteed. [It should be noted that when $t = 0.008$, an accuracy of six decimals in $Be_r(t)$ or $Bo_r(t)$ means an accuracy of nine or ten significant figures in $be_r(s)$ and $bo_r(s)$, respectively.] An examination of the entries revealed that the seventh decimal place, while not completely reliable in this range, is in error by at most two units for the first few entries, and that the accuracy improves as t increases. For values of t greater than or equal to 0.01, the entries should be correct to eight decimals. However, since the method of checking the table was by differencing it, a random error of two units in the eighth decimal place could have escaped detection. For this reason the eighth decimal is to be considered reliable only to within two units for $t \geq 0.01$ and is completely uncertain for smaller values of t. It was deemed best not to cut the number of places to those that could be fully guaranteed.

An examination of (1.21) shows that $Bo_{r+1}(t)$ approaches $Be_r(t)$ for sufficiently small t. The functions $Bo_r(t)$ and $Be_r(t)$ were generated independently for all values of t. The range where $Bo_r(t)$ agreed with $Be_{r-1}(t)$ to eight decimals was then discarded, in order not to duplicate tabulations. The reader is therefore reminded that, when seeking $Bo_r(t)$ for an argument $t < t_0$, where t_0 is the first entry in the table of $Bo_r(t)$, he can find the entry in the table of $Be_{r-1}(t)$, by inspection or by interpolation. Moreover, for $t > 0.1$, the table in [5] is fully adequate.

At the beginning of each table, a few central differences were obtained by extrapolation. Interpolation in this region may be slightly less accurate in the last place, because of the extrapolated differences. However, since the eighth decimal place is itself uncertain for small values of t, the added error is immaterial.

3. ASYMPTOTIC PROPERTIES

At $s = 0$, the periodic solutions are $y = c_1 \cos rx$, or $y = c_2 \sin rx$, where c_1 and c_2 are constants depending only on the normalization desired. Thus the only non-zero coefficient of the trigonometric series for y, at $s = 0$, is A_r or B_r. For relatively small values of s, the coefficients A_n increase in magnitude with n up to the r^{th} coefficient; thereafter they steadily decrease numerically. This is not true for the larger values of s. Consider the function $be_{2r}(s)$ and the periodic solution associated with it. From the definition of V_m in (1.15), we have

$$A_2/A_0 = Ge_2 = V_0 \cong -2 + \frac{4\nu}{\sqrt{s}} \tag{3.10}$$

In the above, $be_r(s)$ has been replaced by $\nu\sqrt{s}$ from (1.21). Thus for sufficiently large s, $|A_2| \cong 2A_0$. Similarly,

$$A_4/A_2 = G_4 = V_2 - \frac{2}{G_2} \cong -1 + \frac{6\nu}{\sqrt{s}} + 0(1/s). \tag{3.11}$$

Hence $|G_4| < 1$, and for sufficiently large s, all ratios G_k are numerically less than unity when k is greater than 4. Thus A_2 is the largest coefficient numerically in the trigonometric series expression for y. This property is already evident from the coefficients tabulated in [5]. Thus for the function of order four, at $s = 100$, A_2 (and not A_4) is the numerically largest coefficient. Similarly it can be shown that $|B_1|$ is the largest coefficient of the set for sufficiently large values of s. One might be tempted to conjecture that similar properties hold for the even solutions of period 2π and for the odd solutions of period π—that is, that either the first or the second coefficient of the set is the largest one numerically. The conjecture might be strengthened by the fact that at $s = 100$ and $r = 5$, $|A_3|$ is indeed the largest numerical coefficient. However, some of the auxiliary computations performed in conjunction with the present tabulation show that the conjecture is a false one. For a fixed t, the coefficients of the trigonometric series can be divided into three subsequences. In the first one, the ratios $G_k, G_{k+2}, \cdots, G_{m_0-2}$ are numerically

equal to or greater than unity, with $k = 2$, 3, or 4, depending on the type of solution that is under discussion. Then follows an intermediate subsequence in which G_{m_o} is the first G_j that is numerically less than one, and succeeding G_j may be of any magnitude, and even infinite. In this range the coefficients A_j and B_j can go through zero. The last subsequence consists of the range where all G_p are numerically less than unity. It is clear that in the first subsequence, A_{m_o-2} or B_{m_o-2} is the numerically largest coefficient. There may conceivably be some coefficient in the intermediate range that is larger in absolute value, although this is not likely. The remarkable fact is that for very large values of s, A_3 is *not* the largest coefficient for even solutions of period 2π; neither is $|B_2|$ or $|B_4|$ the largest coefficient for odd solutions of period π. The computing routine incorporated provisions for reading out, from time to time, the value of m_o associated with G_{m_o} (the first G_j in the intermediate subsequence). We present below a part of the record for $Be_1(t)$ listing t and corresponding value of $m_o - 2$.

t	$m_o - 2$
.002	23
.004	15
.006	13
.008	11
.010	9

Another interesting asymptotic property can be tested from the entries published here. Meixner [4] gives the following[3] formula:

$$bo_{r+1}(s) - be_r(s) = Bo_{r+1}(t) - Be_r(t) \cong \sqrt{\frac{2}{\pi}}\, 2^{3r+(7/2)} s^{\frac{1}{2}r+(3/4)} e^{-2\sqrt{s}}\, U, \tag{3.12}$$

where

$$U = 1 - \frac{(6r^2 + 14r + 7)}{16\sqrt{s}}.$$

Clearly it is impossible to test the formula in a region where $Bo_{r+1}(t)$ is equal to $Be_r(t)$ to eight decimal places. However, the formula can be tested in other regions. Some cases are given below:

r	t	$Fo_{r+1}(t) - Fe_r(t)$	
		By Meixner's (3.12)	True value
0	.096	.00000 026	.00000 026
0	.125	.00002 173	.00002 168
0	.25	.02158	.02134
0	.5	.36533	.34489
1	.096	.00001 898	.00001 896
1	.25	.44818	.42887
2	.080	.00001 953	.00001 987
2	.096	.00060 978	.00062 591
2	.125	.02538	.02666
3	.064	.00000 286	.00000 304
3	.096	.01002	.01220
4	.050	.00000 005	.00000 007
4	.060	.00001 090	.00001 347
4	.072	.00073	.00108
5	.048	.00000 024	.00000 024
5	.060	.00011	.00026
6	.048	.00000 162	.00003 684
7	.040	.00000 014	.00003 017

It is to be noted that for $r = 0$, Meixner's approximation is very good, even for large values of t, some in fact outside the range of the present table. As r increases, the agreement of (3.12) with the true value becomes poorer, and at $r = 7$, not even the order of magnitude is correct. Much more remains to be done in the way of obtaining a satisfactory asymptotic expansion for the characteristic functions, perhaps in terms of the parameters νt and ν, rather than t and ν. It is hoped that the accessibility of the present table will stimulate further study of the problem.

4. METHOD OF COMPUTATION AND CHECKING OF MANUSCRIPT

The values were computed on SEAC from the continued fractions (1.16) and (1.20), as outlined in [1] and [2]. The values printed out by SEAC were later recorded on IBM cards and differenced. Doubtful entries were recomputed on SEAC, and the regions where errors had occurred were redifferenced by hand. (There were only a few errors.) The printer's galleys were carefully proofread against the final manuscript.

Much help has been obtained from colleagues with the checking of the manuscript

[3] Meixner's notation is different from the one used here.

by differencing and in supplying modified differences near the beginning of each table. It would be difficult to mention everyone who had a hand in producing these tables, but special thanks are due to Dr. Dan Teichroew and Mr. Albert Rosenthal, who differenced the manuscript on an IBM tabulator, and to Miss Elizabeth Godefroy, who helped with computations on a desk calculator.

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[4] MEIXNER, J. AND SCHÄFKE, F. W. *Mathieusche Funktionen und Sphäroidfunktionen.* Berlin, 1954.

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CHARACTERISTIC VALUES OF MATHIEU'S EQUATION

$$y'' + (b - s\cos^2 x)\, y = 0$$

Definitions

Even periodic solutions, of period π or 2π, are associated with $b = be_r(s)$.

Odd periodic solutions, of period π or 2π, are associated with $b = bo_r(s)$

$$Be_r(t) = be_r(s) - (2r+1)\sqrt{s}, \qquad s = 1/t^2$$

$$Bo_r(t) = bo_r(s) - (2r-1)\sqrt{s}, \qquad s = 1/t^2$$

$$\lim_{t=0} Be_r(t) = \lim_{t=0} Bo_{r+1}(t) = -[(2r+1)^2+1]/8$$

TABLE 1. *Values of* $\mathrm{Be}_r(t)$

Index

r	Range of t	Page
0	0(.002)0.1	171
1	0(.002)0.1	171
2	0(.002)0.1	172
3	0(.002)0.1	172
4	0(.002)0.1	173
5	0(.002)0.088(.001)0.1	173
6	0(.002)0.064(.001)0.1	174
7	0(.002)0.046(.001)0.1	174
8	0(.002)0.040(.001)0.062(.0005)0.076(.001)0.1	175
9	0(.002)0.034(.001)0.050(.0005)0.076(.001)0.1	176
10	0(.002)0.030(.001)0.045(.0005)0.076(.001)0.1	177
11	0(.002)0.026(.001)0.037(.0005)0.070(.001)0.1	178
12	0(.002)0.022(.001)0.033(.0005)0.043(.00025)0.052(.0005)0.065(.001)0.1	180
13	0(.002)0.018(.001)0.030(.0005)0.037(.00025)0.051(.0005)0.064(.001)0.1	181
14	0(.002)0.014(.001)0.027(.0005)0.034(.00025)0.050(.0005)0.062(.001)0.1	183
15	0(.002)0.012(.001)0.026(.0005)0.032(.00025)0.049(.0005)0.061(.001)0.1	185

For $t > 0.1$ (i.e. for $s < 100$), see tables $be_r(s)$ in *Tables Relating to Mathieu Functions*, National Bureau of Standards. Columbia University Press, New York, 1951.

TABLE 1. *Characteristic Values* $Be_r(t)$

t	$Be_0(t)$	δ^{32*}	t	$Fe_0(t)$	δ^{32*}
0.000	−0.25000000	−38	0.050	−0.25324915	−45
.002	−.25012518	−38	.052	−.25338461	−45
.004	−.25025074	−39	.054	−.25352052	−45
.006	−.25037669	−38	.056	−.25365688	−46
.008	−.25050302	−39	.058	−.25379370	−46
0.010	−0.25062974	−38	0.060	−0.25393098	−46
.012	−.25075684	−39	.062	−.25406872	−47
.014	−.25088433	−40	.064	−.25420693	−47
.016	−.25101222	−39	.066	−.25434562	−48
.018	−.25114050	−40	.068	−.25448478	−48
0.020	−0.25126918	−40	0.070	−0.25462442	−48
.022	−.25139826	−40	.072	−.25476454	−49
.024	−.25152774	−41	.074	−.25490515	−49
.026	−.25165763	−41	.076	−.25504625	−50
.028	−.25178793	−41	.078	−.25518785	−50
0.030	−0.25191865	−42	0.080	−0.25532994	−50
.032	−.25204978	−42	.082	−.25547254	−51
.034	−.25218132	−42	.084	−.25561565	−51
.036	−.25231329	−42	.086	−.25575927	−52
.038	−.25244569	−43	.088	−.25590341	−52
0.040	−0.25257851	−43	0.090	−0.25604808	−53
.042	−.25271176	−43	.092	−.25619328	−54
.044	−.25284545	−44	.094	−.25633901	−55
.046	−.25297958	−44	.096	−.25648530	−56
.048	−.25311414	−44	.098	−.25663214	−57
0.050	−0.25324915	−45	0.100	−0.25677955	−58

t	$Be_1(t)$	δ^{32*}	t	$Be_1(t)$	δ^{32*}
0.000	−1.25000000	−565	0.050	−1.28005681	−752
.002	−1.25112781	−570	.052	−1.28134796	−761
.004	−1.25226132	−575	.054	−1.28264673	−771
.006	−1.25340058	−581	.056	−1.28395321	−781
.008	−1.25454565	−587	.058	−1.28526750	−792
0.010	−1.25569658	−594	0.060	−1.28658972	−802
.012	−1.25685345	−600	.062	−1.28791995	−813
.014	−1.25801632	−607	.064	−1.28925832	−824
.016	−1.25918526	−614	.066	−1.29060493	−836
.018	−1.26036033	−620	.068	−1.29195990	−847
0.020	−1.26154161	−627	0.070	−1.29332334	−860
.022	−1.26272917	−635	.072	−1.29469538	−872
.024	−1.26392307	−642	.074	−1.29607614	−885
.026	−1.26512340	−650	.076	−1.29746576	−899
.028	−1.26633022	−657	.078	−1.29886437	−914
0.030	−1.26754361	−665	0.080	−1.30027212	−930
.032	−1.26876365	−673	.082	−1.30168917	−947
.034	−1.26999042	−681	.084	−1.30311570	−967
.036	−1.27122400	−689	.086	−1.30455189	−989
.038	−1.27246447	−697	.088	−1.30599798	−1014
0.040	−1.27371191	−706	0.090	−1.30745422	−1043
.042	−1.27496641	−715	.092	−1.30892089	−1077
.044	−1.27622806	−724	.094	−1.31039833	−1116
.046	−1.27749695	−733	.096	−1.31188696	−1163
.048	−1.27877317	−742	.098	−1.31338722	−1218
0.050	−1.28005681	−752	0.100	−1.31489969	−1283

TABLE 1—*Continued*

t	$Be_2(t)$	δ^{2*}	t	$Be_2(t)$	δ^{2*}
0.000	−3.25000000	−3113	0.050	−3.37050707	−4726
.002	−3.25439064	−3159	.052	−3.37586291	−4818
.004	−3.25881287	−3206	.054	−3.38126695	−4913
.006	−3.26326716	−3255	.056	−3.38672012	−5011
.008	−3.26775401	−3305	.058	−3.39222340	−5113
0.010	−3.27227390	−3356	0.060	−3.39777782	−5218
.012	−3.27682735	−3408	.062	−3.40338443	−5327
.014	−3.28141489	−3462	.064	−3.40904432	−5441
.016	−3.28603705	−3517	.066	−3.41475863	−5561
.018	−3.29069438	−3573	.068	−3.42052856	−5687
0.020	−3.29538745	−3631	0.070	−3.42635538	−5822
.022	−3.30011683	−3691	.072	−3.43224044	−5967
.024	−3.30488313	−3752	.074	−3.43818519	−6128
.026	−3.30968695	−3815	.076	−3.44419127	−6307
.028	−3.31452892	−3879	.078	−3.45026046	−6512
0.030	−3.31940969	−3946	0.080	−3.45639483	−6750
.032	−3.32432992	−4014	.082	−3.46259679	−7030
.034	−3.32929030	−4084	.084	−3.46886914	−7363
.036	−3.33429151	−4156	.086	−3.47521524	−7763
.038	−3.33933429	−4230	.088	−3.48163912	−8243
0.040	−3.34441938	−4307	0.090	−3.48814561	−8821
.042	−3.34954755	−4386	.092	−3.49474053	−9514
.044	−3.35471957	−4467	.094	−3.50143083	−10339
.046	−3.35993627	−4551	.096	−3.50822480	−11317
.048	−3.36519848	−4637	.098	−3.51513226	−12466
0.050	−3.37050707	−4726	0.100	−3.52216473	−13805

t	$Be_3(t)$	δ^{2*}	t	$Be_3(t)$	δ^2	δ^{4*}
0.000	−6.25000000	−10680	0.052	−6.58939211	−19310	
.002	−6.26142878	−10894	.054	−6.60458739	−19855	
.004	−6.27296651	−11111	.056	−6.61998129	−20428	
.006	−6.28461535	−11329	.058	−6.63557952	−21031	
.008	−6.29637750	−11556	.060	−6.65138813	−21671	
0.010	−6.30825523	−11793	0.062	−6.66741354	−22355	
.012	−6.32025091	−12035	.064	−6.68366260	−23095	
.014	−6.33236695	−12287	.066	−6.70014275	−23911	
.016	−6.34460588	−12547	.068	−6.71686220	−24828	
.018	−6.35697030	−12815	.070	−6.73383018	−25884	
0.020	−6.36946288	−13093	0.072	−6.75105737	−27130	
.022	−6.38208640	−13380	.074	−6.76855633	−28631	
.024	−6.39484375	−13678	.076	−6.78634223	−30470	
.026	−6.40773790	−13987	.078	−6.80443363	−32745	
.028	−6.42077195	−14307	.080	−6.82285351	−35572	
0.030	−6.43394908	−14639				
.032	−6.44727263	−14984	0.080	−6.82285351	−35698	−683
.034	−6.46074604	−15342	.082	−6.84163037	−39236	−826
.036	−6.47437290	−15714	.084	−6.86079959	−43601	−976
.038	−6.48815692	−16101	.086	−6.88040481	−48942	−1127
0.040	−6.50210198	−16504	0.088	−6.90049947	−55410	−1272
.042	−6.51621211	−16923	.090	−6.92114822	−63146	−1403
.044	−6.53049150	−17360	.092	−6.94242843	−72281	−1511
.046	−6.54494454	−17816	.094	−6.96443145	−82920	−1587
.048	−6.55957577	−18292	.096	−6.98726367	−95138	−1622
0.050	−6.57438997	−18790	0.098	−7.01104727	−108969	−1607
.052	−6.58939211	−19310	.100	−7.03592056	−124395	−1537

In $Be_3(t)$ the values of δ^2 have been modified for t ranging from 0.052 to 0.080.

TABLE 1—*Continued*

t	$Be_4(t)$	δ^2*		t	$Be_3(t)$	δ^2	δ^4*
0.000	−10.25000000	−27824		0.054	−11.01847009	−62292	
.002	−10.27376498	−28464		.056	−11.05357619	−64847	
.004	−10.29781468	−29151		.058	−11.08933122	−67644	
.006	−10.32215597	−29877		.060	−11.12576330	−70766	
.008	−10.34679608	−30635		.062	−11.16290391	−74343	
0.010	−10.37174259	−31418		0.064	−11.20078916	−78569	
.012	−10.39700335	−32235					
.014	−10.42258652	−33086					
.016	−10.44850062	−33974		0.064	−11.20078916	−78743	−927
.018	−10.47475452	−34899		.066	−11.23946185	−83969	−1309
0.020	−10.50135748	−35865		0.068	−11.27897423	−90527	−1807
.022	−10.52831917	−36875		.070	−11.31939188	−98917	−2426
.024	−10.55564969	−37930		.072	−11.36079869	−109756	−3161
.026	−10.58335960	−39035		.074	−11.40330307	−123775	−3989
.028	−10.61145996	−40192		.076	−11.44704520	−141794	−4873
0.030	−10.63996234	−41405		0.078	−11.49220526	−164686	−5759
.032	−10.66887889	−42679		.080	−11.53901218	−193322	−6574
.034	−10.69822234	−44016		.082	−11.58775232	−228499	−7232
.036	−10.72800608	−45423		.084	−11.63877745	−270853	−7631
.038	−10.75824418	−46903		.086	−11.69251111	−320762	−7657
0.040	−10.78895146	−48464		0.088	−11.74945238	−378225	−7192
.042	−10.82014355	−50111		.090	−11.81017591	−442754	−6112
.044	−10.85183691	−51851		.092	−11.87532698	−513245	−4304
.046	−10.88404897	−53692		.094	−11.94561050	−587874	−1682
.048	−10.91679815	−55644		.096	−12.02177276	−664012	1794
0.050	−10.95010400	−57717		0.098	−12.10457513	−738191	6085
.052	−10.98398727	−59926		.100	−12.19475942	−806154	11039

t	$Be_3(t)$	δ^2	δ^4*	t	$Be_2(t)$	δ^2	δ^4*
0.000	−15.25000000	−60385	−30	0.050	−16.56743795	−151835	−732
.002	−15.29292998	−62172	−55	.052	−16.63459395	−159898	−967
.004	−15.33648169	−64017	−79	.054	−16.70334893	−168963	−1367
.006	−15.38067356	−65942	−93	.056	−16.77379354	−179451	−2031
.008	−15.42552485	−67959	−100	.058	−16.84603265	−192049	−3076
0.010	−15.47105574	−70077	−104	0.060	−16.92019225	−207827	−4630
.012	−15.51728740	−72299	−115	.062	−16.99643012	−228360	−6801
.014	−15.56424204	−74636	−120	.064	−17.07495159	−255832	−9650
.016	−15.61194305	−77093	−131	.066	−17.15603137	−293082	−13147
.018	−15.66041499	−79681	−140	.068	−17.24004198	−343575	−17142
0.020	−15.70968373	−82410	−151	0.070	−17.32748833	−411244	−21334
.022	−15.75977658	−85289	−164	.072	−17.41904713	−500179	−25240
.024	−15.81072231	−88332	−177	.074	−17.51560771	−614147	−28185
.026	−15.86255137	−91552	−191	.076	−17.61830977	−755909	−29283
.028	−15.91529595	−94964	−208	.078	−17.72857092	−926344	−27453
0.030	−15.96899017	−98583	−227	0.080	−17.84809551	−1123376	−21478
.032	−16.02367023	−102429	−246	.082	−17.97885386	−1340797	−10162
.034	−16.07937457	−106522	−269	.084	−18.12302018	−1567137	7343
.036	−16.13614414	−110886	−295	.086	−18.28285787	−1784921	31019
.038	−16.19402257	−115546	−325	.088	−18.46054477	−1970806	59336
0.040	−16.25305645	−120532	−359				
.042	−16.31329566	−125878	−398	0.088	−18.46054477	−493629	3706
.044	−16.37479365	−131624	−445	.089	−18.55668240	−511969	4632
.046	−16.43760788	−137818	−506	.090	−18.65793973	−525682	5537
.048	−16.50180029	−144524	−593	.091	−18.76445387	−533872	6374

In $Be_4(t)$ the values of δ^2 have been modified for t ranging from 0.054 to 0.064.

TABLE 1—*Continued*

t	$Be_3(t)$	δ^2	δ^4	t	$Be_3(t)$	δ^2	δ^4
0.091	−18.76445387	−533872	6374	0.096	−19.37638388	−468115	7013
.092	−18.87630673	−535712	7094	.097	−19.51372569	−431465	7471
.093	−18.99351671	−530493	7647	.098	−19.65538217	−387397	6777
.094	−19.11603162	−517669	7989	.099	−19.80091260	−336597	5854
.095	−19.24372321	−496907	8084	.100	−19.94980901	−279976	4775
t	$Be_4(t)$	δ^2	δ^4	t	$Be_4(t)$	δ^2	δ^4
0.000	−21.25000000	−116101	−215	0.065	−24.55055908	−269921	−4980
.002	−21.32046179	−120043	−225	.066	−24.63418937	−305137	−5393
.004	−21.39212402	−124210	−237	.067	−24.72087104	−345724	−5699
.006	−21.46502833	−128614	−251	.068	−24.81100994	−391977	−5848
.008	−21.53921879	−133270	−267	.069	−24.90506862	−444033	−5782
0.010	−21.61474195	−138194	−289	0.070	−25.00356762	−501812	−5434
.012	−21.69164705	−143408	−319	.071	−25.10708475	−564953	−4734
.014	−21.76998623	−148940	−341	.072	−25.21625140	−632739	−3608
.016	−21.84981480	−154815	−374	.073	−25.33174545	−704032	−1989
.018	−21.93119153	−161065	−407	.074	−25.45427982	−777203	173
0.020	−22.01417890	−167722	−446	0.075	−25.58458622	−850085	2901
.022	−22.09884350	−174827	−489	.076	−25.72339347	−919958	6167
.024	−22.18525636	−182422	−537	.077	−25.87140030	−983574	9883
.026	−22.27349345	−190555	−593	.078	−26.02924287	−1037253	13882
.028	−22.36363609	−199283	−655	.079	−26.19745797	−1077044	17917
0.030	−22.45577156	−208668	−727	0.080	−26.37644351	−1098980	21664
.032	−22.54999371	−218783	−810	.081	−26.56641884	−1099387	24756
.034	−22.64640370	−229711	−905	.082	−26.76738805	−1075247	26829
.036	−22.74511079	−241547	−1016	.083	−26.97910974	−1024546	27581
.038	−22.84623335	−254403	−1146	.084	−27.20107687	−946568	26829
0.040	−22.94989994	−268411	−1302	0.085	−27.43250969	−842069	24556
.042	−23.05625064	−283731	−1499	.086	−27.67236319	−713289	20924
.044	−23.16543866	−300568	−1773	.087	−27.91934959	−563797	16250
.046	−23.27763236	−319215	−2209	.088	−28.17197396	−398183	10952
.048	−23.39301821	−340146	−2981	.089	−28.42858015	−221653	5483
0.050	−23.51180553	−364198	−4396	0.090	−28.68740287	−39594	258
.052	−23.63423483	−392883	−6927	.091	−28.94662153	142838	−4394
.054	−23.76059296	−428856	−11197	.092	−29.20441181	321034	−8257
.056	−23.89123965	−476521	−17883	.093	−29.45899174	491152	−11235
.058	−24.02665155	−542666	−27543	.094	−29.70866016	650216	−13326
0.060	−24.16749011	−636975	−40347	0.095	−29.95182642	796119	−14606
.062	−24.31469842	−772125	−55758	.096	−30.18703149	927558	−15194
.064	−24.46962799	−963181	−72180	.097	−30.41296097	1043919	−15226
				.098	−30.62845127	1145140	−14842
				.099	−30.83249018	1231579	−14168
0.064	−24.46962799	−239671	−4503	0.100	−31.02421328	1303891	−13309
t	$Be_7(t)$	δ^2	δ^4	t	$Be_7(t)$	δ^2	δ^4
0.000	−28.25000000	−203754	−443	0.020	−29.43582156	−312677	−1164
.002	−28.35790683	−211758	−488	.022	−29.56949480	−328454	−1297
.004	−28.46793124	−220250	−535	.024	−29.70645258	−345533	−1453
.006	−28.58015815	−229279	−588	.026	−29.84686570	−364070	−1633
.008	−28.69467785	−238898	−649	.028	−29.99091952	−384247	−1844
0.010	−28.81158653	−249165	−707	0.030	−30.13881580	−406275	−2091
.012	−28.93098687	−260141	−776	.032	−30.29077484	−430404	−2385
.014	−29.05298861	−271896	−856	.034	−30.44703792	−456930	−2735
.016	−29.17770932	−284508	−944	.036	−30.60787030	−486208	−3158
.018	−29.30527510	−298068	−1047	.038	−30.77356476	−518666	−3682

TABLE 1—*Continued*

t	$Be_1(t)$	δ^2	δ^4	t	$Be_1(t)$	δ^2	δ^4
0.040	−30.94444588	−554848	−4375	0.071	−35.22625220	−2055385	59360
.042	−31.12087548	−595489	−5423	.072	−35.52042922	−2066771	71507
.044	−31.30325998	−641744	−7283	.073	−35.83527395	−2007554	79203
.046	−31.49206191	−695684	−10931	.074	−36.17019423	−1870378	80708
				.075	−36.52381827	−1653892	75213
0.046	−31.49206191	−173745	−692	0.076	−36.89398124	−1363503	63160
.047	−31.58903408	−181443	−882	.077	−37.27777924	−1010941	46181
.048	−31.68782068	−190039	−1145	.078	−37.67168665	− 612716	26672
.049	−31.78850767	−199798	−1503	.079	−38.07172122	−187834	7170
.050	−31.89119264	−211085	−1980	.080	−38.47363412	244625	−10217
0.051	−31.99598846	−224383	−2602	0.081	−38.87310078	667549	−24149
.052	−32.10302811	−240316	−3391	.082	−39.26589196	1067118	−34108
.053	−32.21247092	−259680	−4367	.083	−39.64801195	1433352	−40248
.054	−32.32451053	−283450	−5540	.084	−40.01579842	1760001	−43143
.055	−32.43938464	−312800	−6908	.085	−40.36598488	2044020	−43555
0.056	−32.55738676	−349093	−8452	0.086	−40.69573114	2284845	−42248
.057	−32.67887980	−393864	−10129	.087	−41.00262895	2483646	−39884
.058	−32.80431149	−448775	−11865	.088	−41.28469030	2642681	−36978
.059	−32.93423092	−515537	−13549	.089	−41.54032485	2764781	−33891
.060	−33.06930573	−595804	−15026	.090	−41.76831158	2852985	−30850
0.061	−33.21033858	−691007	−16081	0.091	−41.96776847	2910307	−27975
.062	−33.35828149	−802143	−16438	.092	−42.13812227	2939615	−25305
.063	−33.51424583	−929502	−15774	.093	−42.27907993	2943578	−22831
.064	−33.67950519	−1072334	−13649	.094	−42.39060181	2924678	−20514
.065	−33.85548789	−1228436	−9707	.095	−42.47287691	2885242	−18302
0.066	−34.04375494	−1393780	−3474	0.096	−42.52629959	2827492	−16148
.067	−34.24595080	−1562084	5287	.097	−42.55144734	2753588	−14015
.068	−34.46378549	−1724587	16621	.098	−42.54905922	2665668	−11887
.069	−34.69885706	−1870040	30138	.099	−42.52001441	2565860	−9762
.070	−34.95262902	−1985121	44899	.100	−42.46531100	2456284	−7659
t	$Be_2(t)$	δ^2	δ^4	t	$Be_2(t)$	δ^2	δ^4
0.000	−36.25000000	−334060	−1030	0.040	−40.31415161	−272811	−933
.002	−36.40681895	−348838	−1078	.041	−40.45279259	−285256	−1112
.004	−36.56712628	−364700	−1155	.042	−40.59428614	−298830	−1370
.006	−36.73108061	−38'723	−1262	.043	−40.73876798	−313801	−1751
.008	−36.89885217	−400014	−1407	.044	−40.88638783	−330559	−2308
0.010	−37.07062386	−419715	−1554	0.045	−41.03731327	−349677	−3115
.012	−37.24659271	−440976	−1738	.046	−41.19173547	−371981	−4259
.014	−37.42697132	−463980	−1937	.047	−41.34987749	−398634	−5839
.016	−37.61198973	−488927	−2173	.048	−41.51200584	−431236	−7952
.018	−37.80189740	−516055	−2447	.049	−41.67844656	−471919	−10691
0.020	−37.99696564	−545640	−2768	0.050	−41.84963647	−523432	−14114
.022	−38.19749027	−578005	−3144	.051	−42.02600069	−589198	−18230
.024	−38.40379496	−613528	−3592	.052	−42.20828689	−673316	−22958
.026	−38.61623493	−652661	−4124	.053	−42.39730626	−780470	−28096
.028	−38.83520150	−695941	−4767	.054	−42.59413332	−915715	−33264
0.030	−39.06112748	−744017	−5547	0.055	−42.80011153	−1084090	−37847
.032	−39.29449364	−797677	−6503	.056	−43.01693364	−1289984	−40923
.034	−39.53583656	−857891	−7691	.057	−43.24665559	−1536208	−41204
.036	−39.78575840	−925873	−9208	.058	−43.49173962	−1822697	−37006
.038	−40.04493896	−1003209	−11308	.059	−43.75505362	−2144854	−26336
0.040	−40.31415161	−1092187	−14745	0.060	−44.03981015	−2491618	−7174
				.061	−44.34948587	−2843569	21913
				.062	−44.68759727	−3171689	60810

TABLE 1—*Continued*

t	$Bes(t)$	δ^2	δ^4	t	$Bes(t)$	δ^2	δ^4
0.0620	−44.68759727	−793879	3799	0.0760	−51.93485750	987777	−6889
.0625	−44.86836095	−830092	5191				
.0630	−45.05742556	−861089	6653				
.0635	−45.25510106	−885421	8123	0.076	−51.93485750	3944233	−110389
.0640	−45.46163077	−901628	9547	.077	−52.39628243	4416545	−105177
0.0645	−45.67717676	−908298	10832	0.078	−52.81354192	4784177	−97742
.0650	−45.90180573	−904167	11905	.079	−53.18295964	5054234	−89651
.0655	−46.13547637	−888173	12686	.080	−53.50183501	5234636	−81701
.0660	−46.37802874	−859556	13105	.081	−53.76836403	5333272	−74129
.0665	−46.62917667	−817907	13125	.082	−53.98156033	5357730	−66827
0.0670	−46.88850367	−763216	12712	0.083	−54.14117933	5315358	−59541
.0675	−47.15546283	−695902	11871	.084	−54.24764475	5213491	−52017
.0680	−47.42938102	−616797	10653	.085	−54.30197526	5059678	−44113
.0685	−47.70946718	−527103	9119	.086	−54.30570898	4861822	−35841
.0690	−47.99482438	−428337	7351	.087	−54.26082448	4628161	−27373
0.0695	−48.28446495	−322250	5447	0.088	−54.16965837	4367107	−18994
.0700	−48.57732801	−210724	3498	.089	−54.03482120	4086971	−11036
.0705	−48.87229831	−95692	1596	.090	−53.85911431	3795650	−3815
.0710	−49.16822554	20961	−186	.091	−53.64545091	3500315	2427
.0715	−49.46394315	137463	−1790	.092	−53.39678437	3207179	7545
0.0720	−49.75828614	252219	−3181	0.093	−53.11604602	2921351	11500
.0725	−50.05010693	363842	−4338	.094	−52.80609417	2646795	14339
.0730	−50.33828930	471174	−5260	.095	−52.46967436	2386372	16178
.0735	−50.62175993	573292	−5957	.096	−52.10939083	2141952	17167
.0740	−50.89949764	669496	−6448	.097	−51.72768778	1914557	17470
0.0745	−51.17054038	759289	−6758	0.098	−51.32683916	1704523	17250
.0750	−51.43399023	842356	−6917	.099	−50.90894530	1511660	16651
.0755	−51.68901652	918532	−6951	.100	−50.47593483	1335394	15795

t	$Bes(t)$	δ^2	δ^4	t	$Bes(t)$	δ^2	δ^4
0.000	−45.25000000	−518845	−1844	0.039	−50.94571032	−494100	−2833
.002	−45.46876033	−544553	−2049	.040	−51.15352446	−522572	−3667
.004	−45.69296618	−572313	−2269	.041	−51.36656432	−554809	−4955
.006	−45.92289517	−602349	−2524	.042	−51.58515227	−592143	−6922
.008	−46.15884765	−634919	−2824	.043	−51.80966164	−636603	−9862
0.010	−46.40114931	−670323	−3177	0.044	−52.04053705	−691197	−14118
.012	−46.65015420	−708917	−3589	.045	−52.27832442	−760255	−20052
.014	−46.90624826	−751114	−4070	.046	−52.52371435	−849773	−27989
.016	−47.16985347	−797400	−4639	.047	−52.77760200	−967721	−38117
.018	−47.44143267	−848347	−5315	.048	−53.04116687	−1124202	−50353
0.020	−47.72149533	−904636	−6124	0.049	−53.31597375	−1331326	−64147
.022	−48.01060436	−967085	−7102	.050	−53.60409390	−1602606	−78212
.024	−48.30938423	−1036680	−8293				
.026	−48.61853091	−1114627	−9758				
.028	−48.93882386	−1202408	−11583	0.0500	−53.60409390	−399433	−4881
0.030	−49.27114088	−1301872	−13881	0.0505	−53.75396534	−440332	−5280
.032	−49.61647662	−1415358	−16816	.0510	−53.90824011	−486499	−5620
.034	−49.97596594	−1545878	−20671	.0515	−54.06737986	−538265	−5866
				.0520	−54.23190227	−595870	−5978
				.0525	−54.40238338	−659414	−5907
0.034	−49.97596594	−386143	−1300	0.0530	−54.57945863	−728816	−5595
.035	−50.16141840	−404318	−1457	.0535	−54.76382203	−803748	−4978
.036	−50.35091404	−423959	−1656	.0540	−54.95622292	−883583	−3991
.037	−50.54464927	−445269	−1918	.0545	−55.15745964	−967318	−2565
.038	−50.74283719	−468522	−2287	.0550	−55.36836954	−1053516	−645

TABLE 1—*Continued*

t	$B_{e9}(t)$	δ^2	δ^4*	t	$B_{e9}(t)$	δ^2	δ^4*
0.0555	−55.58981460	−1140250	1811	0.0725	−66.86955856	2276696	−11881
.0560	−55.82266216	−1225063	4810	.0730	−67.02495288	2285678	−11267
.0565	−56.06776035	−1304964	8315	.0735	−67.15749041	2283399	−10622
.0570	−56.32590818	−1376468	12232	.0740	−67.26719396	2270505	−9938
.0575	−56.59782068	−1435691	16395	.0745	−67.35419246	2247683	−9209
0.0580	−56.88409010	−1478520	20571	0.0750	−67.41871413	2215661	−8430
.0585	−57.18514471	−1500837	24463	.0755	−67.46107918	2175220	−7605
.0590	−57.50120769	−1498818	27742	.0760	−67.48169205	2127180	−6740
.0595	−57.83225886	−1469251	30078				
.0600	−58.17800253	−1409854	31192				
0.0605	−58.53784475	−1319550	30903	0.076	−67.48169205	8501988	−107874
.0610	−58.91088246	−1198637	29162	.077	−67.45965009	8042226	−78982
.0615	−59.29590655	−1048838	26065	.078	−67.35718587	7503471	−50093
.0620	−59.69141901	−873200	21848	.079	−67.17968695	6914203	−23306
.0625	−60.09566348	−675876	16843	.080	−66.93304600	6300873	−297
0.0630	−60.50666670	−461792	11435	0.081	−66.62339632	5686281	17896
.0635	−60.92228785	−236281	6003	.082	−66.25688383	5088562	31021
.0640	−61.34027181	−4707	877	.083	−65.83948572	4520904	39435
.0645	−61.75830284	227854	−3696	.084	−65.37687857	3991868	43879
.0650	−62.17405533	456863	−7558	.085	−64.87435274	3506072	45246
0.0655	−62.58523920	678470	−10646	0.086	−64.33676619	3065063	44414
.0660	−62.98963837	889588	−12967	.087	−63.76852901	2668164	42138
.0665	−63.38514166	1087882	−14586	.088	−63.17361019	2313223	39025
.0670	−63.76976613	1271716	−15598	.089	−62.55555914	1997220	35521
.0675	−64.14167344	1440054	−16115	.090	−61.91753589	1716713	31912
0.0680	−64.49918022	1592357	−16249	0.091	−61.26234551	1468140	28435
.0685	−64.84076342	1728469	−16104	.092	−60.59247373	1248043	25154
.0690	−65.16506194	1848517	−15767	.093	−59.91012152	1053161	22192
.0695	−65.47087528	1952825	−15308	.094	−59.21723770	880529	19501
.0700	−65.75716037	2041840	−14779	.095	−58.51554859	727463	17136
0.0705	−66.02302705	2116084	−14216	0.096	−57.80658485	591591	15046
.0710	−66.26773291	2176114	−13640	.097	−57.09170520	470820	13228
.0715	−66.49067762	2222505	−13060	.098	−56.37211735	363324	11633
.0720	−66.69139728	2255838	−12476	.099	−55.64889626	267505	10263
.0725	−66.86955856	2276696	−11881	.100	−54.92300012	181979	9054
t	$B_{e10}(t)$	δ^2	δ^4*	t	$B_{e10}(t)$	δ^2	δ^4*
0.000	−55.25000000	−771643	−3254	0.030	−60.82394833	−550068	−2092
.002	−55.54530121	−814032	−3683	.031	−61.06940956	−577803	−2347
.004	−55.84874272	−860115	−4163	.032	−61.32064883	−607895	−2648
.006	−56.16078539	−910375	−4710	.033	−61.57796705	−640649	−3013
.008	−56.48193181	−965364	−5345	.034	−61.84169176	−676438	−3479
0.010	−56.81273187	−1025721	−6092	0.035	−62.11218085	−715743	−4107
.012	−57.15378914	−1092200	−6982	.036	−62.38982737	−759218	−5026
.014	−57.50576841	−1165698	−8044	.037	−62.67506606	−807831	−6451
.016	−57.86940466	−1247286	−9326	.038	−62.96838307	−863083	−8749
.018	−58.24551377	−1338258	−10889	.039	−63.27033090	−927390	−12479
0.020	−58.63500546	−1440195	−12804	0.040	−63.58155264	−1004646	−18435
.022	−59.03889910	−1555033	−15186	.041	−63.90282083	−1101016	−27642
.024	−59.45834307	−1685185	−18174	.042	−64.23509919	−1225940	−41276
.026	−59.89463889	−1833686	−21984	.043	−64.57963694	−1393271	−60471
.028	−60.34927157	−2004408	−26904	.044	−64.93810740	−1622329	−85954
0.030	−60.82394833	−2202374	−33367	0.045	−65.31280115	−1938494	−117442

TABLE 1—*Continued*

t	$Be_{10}(t)$	δ^2	δ^{4*}	t	$Be_{10}(t)$	δ^2	δ^{4*}
0.0450	−65.31280115	−482786	−7340	0.0675	−81.97307885	3589201	−20488
.0455	−65.50717760	−532581	−8421	.0680	−82.03822832	3509859	−17998
.0460	−65.70687985	−590801	−9526	.0685	−82.06827921	3412552	−15347
.0465	−65.91249011	−658541	−10604	.0690	−82.06420457	3299917	−12604
.0470	−66.12468579	−736864	−11581	.0695	−82.02713075	3174681	−9849
0.0475	−66.34425010	−826724	−12357	0.0700	−81.95831013	3039581	−7165
.0480	−66.57208165	−928871	−12803	.0705	−81.85909370	2897286	−4627
.0485	−66.80920191	−1043717	−12756	.0710	−81.73090441	2750322	−2300
.0490	−67.05675935	−1171176	−12018	.0715	−81.57521189	2601005	−230
.0495	−67.31602854	−1310461	−10362	.0720	−81.39350934	2451399	1555
0.0500	−67.58840234	−1459869	−7543	0.0725	−81.18729279	2303289	3043
.0505	−67.87537483	−1616532	−3324	.0730	−80.95804335	2158161	4239
.0510	−68.17851264	−1776194	2482	.0735	−80.70721231	2017215	5157
.0515	−68.49941239	−1933037	9957	.0740	−80.43620912	1881374	5825
.0520	−68.83964251	−2079608	19002	.0745	−80.14639218	1751313	6270
0.0525	−69.20066872	−2206936	29275	0.0750	−79.83906212	1627482	6527
.0530	−69.58376428	−2304879	40135	.0755	−79.51545724	1510146	6626
.0535	−69.98990864	−2362768	50648	.0760	−79.17675090	1399410	6599
.0540	−70.41968068	−2370320	59664				
.0545	−70.87315593	−2318759	65982				
0.0550	−71.34981876	−2201969	68581	0.076	−79.17675090	5604218	105807
.0555	−71.84850129	−2017468	66856	.077	−78.45839749	4796474	100518
.0560	−72.36735850	−1766987	60781	.078	−77.69207935	4088500	91790
.0565	−72.90388559	−1456484	50947	.079	−76.88487620	3471992	81651
.0570	−73.45497751	−1095575	38441	.080	−76.04295314	2937085	71383
0.0575	−74.01702517	−696499	24614	0.081	−75.17165923	2473669	61715
.0580	−74.58603783	−272812	10812	.082	−74.27562864	2072154	52998
.0585	−75.15777861	161907	−1852	.083	−73.35887650	1723853	45354
.0590	−75.72790032	595150	−12625	.084	−72.42488584	1421122	38770
.0595	−76.29207053	1016220	−21146	.085	−71.47668395	1157362	33163
0.0600	−76.84607855	1416605	−27389	0.086	−70.51690844	926944	28420
.0605	−77.38592051	1790023	−31570	.087	−69.54786348	725100	24423
.0610	−77.90786224	2132223	−34038	.088	−68.57156753	547810	21059
.0615	−78.40848174	2440659	−35190	.089	−67.58979348	391690	18226
.0620	−78.88469465	2714100	−35403	.090	−66.60410252	253889	15836
0.0625	−79.33376656	2952270	−34997	0.091	−65.61587268	132000	13815
.0630	−79.75331576	3155524	−34214	.092	−64.62632283	23991	12100
.0635	−80.14130972	3324611	−33220	.093	−63.63653307	−71867	10637
.0640	−80.49605758	3460504	−32108	.094	−62.64746198	−157042	9387
.0645	−80.81620039	3564308	−30911	.095	−61.65996131	−232794	8312
0.0650	−81.10070013	3637222	−29621	0.096	−60.67478859	−300204	7384
.0655	−81.3'882764	3680541	−28204	.097	−59.69261791	−360205	6579
.0660	−81.56014974	3695692	−26612	.098	−58.71404928	−413605	5878
.0665	−81.73451493	3684274	−24808	.099	−57.73961670	−461108	5265
.0670	−81.87203737	3648097	−22767	.100	−56.76979520	−503331	4727
t	$Be_{11}(t)$	δ^2	δ^{4*}	t	$Be_{11}(t)$	δ^2	δ^{4*}
0.000	−66.25000000	−1107665	−5711	0.010	−68.31522765	−1515445	−11091
.002	−66.63801953	−1174367	−6427	.012	−68.77006984	−1625144	−12916
.004	−67.03778273	−1247527	−7296	.014	−69.24116348	−1747844	−15129
.006	−67.45002121	−1328021	−8346	.016	−69.72973556	−1885782	−17867
.008	−67.87553990	−1416906	−9606	.018	−70.23716545	−2041729	−21278

TABLE 1—*Continued*

t	$B_{2n}(t)$	δ^2	δ^4	t	$B_{2n}(t)$	δ^2	δ^4
0.020	−70.76501264	−2219144	−25587	0.0535	−89.84933333	−55293	9369
.022	−71.31505127	−2422402	−31100	.0540	−90.60800769	717523	−18017
.024	−71.88931392	−2657113	−38271	.0545	−91.36130683	1473487	−39504
.026	−72.49014769	−2930592	−47759	.0550	−92.09897109	2191183	−54834
				.0555	−92.81472352	2855160	−64678
0.026	−72.49014769	−731897	−2993	0.0560	−93.50192435	3455352	−70182
.027	−72.80136578	−770352	−3364	.0565	−94.15457165	3986008	−72590
.028	−73.12028739	−812185	−3800	.0570	−94.76735888	4444500	−72993
.029	−73.44733085	−857834	−4312	.0575	−95.33570110	4830258	−72208
.030	−73.78295264	−907816	−4926	.0580	−95.85574074	5143961	−70739
0.031	−74.12765259	−962756	−5677	0.0585	−96.32134077	5387029	−68813
.032	−74.48198010	−1023419	−6636	.0590	−96.73907050	5561383	−66439
.033	−74.84654180	−1090797	−7946	.0595	−97.09818640	5669419	−63489
.034	−75.22201147	−1166266	−9899	.0600	−97.40060811	5714120	−59791
.035	−75.60914380	−1251903	−13055	.0605	−97.64588863	5699211	−55203
0.036	−76.00879516	−1351078	−18416	0.0610	−97.83417703	5629289	−49673
.037	−76.42195729	−1469494	−27610	.0615	−97.96617255	5509869	−43275
				.0620	−98.04306939	5347309	−36204
				.0625	−98.06649314	5148622	−28752
0.0370	−76.42195729	−366934	−1739	.0630	−98.03843066	4921192	−21258
0.0375	−76.63396516	−384135	−2164	0.0635	−97.96115627	4672444	−14063
.0380	−76.84981437	−403526	−2710	.0640	−97.83715744	4409513	−7459
.0385	−77.06969885	−425657	−3401	.0645	−97.66906347	4138961	−1661
.0390	−77.29383989	−451225	−4269	.0650	−97.45957989	3866557	3204
.0395	−77.52249319	−481105	−5338	.0655	−97.21143075	3597159	7094
0.0400	−77.75595753	−516370	−6638	0.0660	−96.92731001	3334661	10040
.0405	−77.99458557	−558324	−8188	.0665	−96.60984267	3082025	12122
.0410	−78.23879686	−608521	−10002	.0670	−96.26155507	2841358	13456
.0415	−78.48909335	−668773	−12078	.0675	−95.88485389	2614017	14166
.0420	−78.74607757	−741150	−14390	.0680	−95.48201254	2400740	14381
0.0425	−79.01047329	−827954	−16883	0.0685	−95.05516378	2201765	14216
.0430	−79.28314855	−931654	−19454	.0690	−94.60629738	2016948	13776
.0435	−79.56514035	−1054787	−21941	.0695	−94.13726149	1845868	13147
.0440	−79.85768002	−1199790	−24101	.0700	−93.64976691	1687910	12398
.0445	−80.16221758	−1368748	−25587				
0.0450	−80.48044263	−1563052	−25933	0.070	−93.64976691	6764025	198625
.0455	−80.81429820	−1782925	−24540	.071	−92.62559620	5644110	172004
.0460	−81.16598301	−2026825	−20685	.072	−91.54498438	4696153	145644
.0465	−81.53793607	−2290737	−13568	.073	−90.41741104	3894289	121764
.0470	−81.93279650	−2567395	−2429	.074	−89.25089481	3214837	101177
0.0475	−82.35333088	−2845560	13266	0.075	−88.05223020	2637236	83935
.0480	−82.80232086	−3109546	33543	.076	−86.82719324	2144194	69735
.0485	−83.28240631	−3339252	57602	.077	−85.58071433	1721426	58146
.0490	−83.79588427	−3511007	83557	.078	−84.31702117	1357253	48723
.0495	−84.34447230	−3599465	108404	.079	−83.03975548	1042170	41063
0.0500	−84.92905499	−3580529	128358	0.080	−81.75206809	768447	34821
.0505	−85.54944296	−3434986	139639	.081	−80.45669624	529781	29713
.0510	−86.20418079	−3152087	139512	.082	−79.15602658	321017	25509
.0515	−86.89043949	−2732104	127198	.083	−77.85214674	137915	22030
.0520	−87.60401924	−2187051	104234	.084	−76.54688776	−23037	19129
0.0525	−88.33946949	−1539215	74071	0.085	−75.24185915	−164762	16696
.0530	−89.09031189	−817903	41074	.086	−73.93847815	−289712	14639

TABLE 1—*Continued*

t	$Ber_{11}(t)$	δ^2	δ^{4*}	t	$Ber_{11}(t)$	δ^2	δ^4
0.087	−72.63799428	−399959	12889	0.094	−63.69376285	−880864	5749
.088	−71.34150999	−497265	11391	.095	−62.44693642	−920179	5164
.089	−70.04999836	−583136	10101	.096	−61.20931178	−954316	4644
.090	−68.76431807	−658870	8983	.097	−59.98123031	−983798	4181
.091	−67.48522649	−725591	8010	.098	−58.76298681	−1009089	3767
0.092	−66.21339081	−784277	7158	0.099	−57.55483420	−1030603	3397
.093	−64.94939791	−835784	6409	.100	−56.35698762	−1048710	3064
t	$Ber_{12}(t)$	δ^2	δ^{4*}	t	$Ber_{12}(t)$	δ^2	δ^4
0.000	−78.25000000	−1542967	−8478	0.0410	−94.65886566	−1699644	−44485
.002	−78.74850196	−1644524	−10477	.0415	−95.05715246	−1969787	−48410
.004	−79.26344916	−1756505	−12261	.0420	−95.47513713	−2287803	−49836
.006	−79.79596141	−1880772	−14190	.0425	−95.91599982	−2654772	−47081
.008	−80.34728137	−2019305	−16506	.0430	−96.38341023	−3067509	−38019
0.010	−80.91879439	−2174457	−19372				
.012	−81.51205198	−2349123	−22903	0.04300	−96.38341023	−766294	−2360
.014	−82.12880080	−2546876	−27312	.04325	−96.62834483	−821630	−1881
.016	−82.77101839	−2772187	−32883	.04350	−96.88149573	−878816	−1248
.018	−83.44095784	−3030714	−40019	.04375	−97.14343479	−937215	−445
0.020	−84.14120443	−3329715	−49300	0.04400	−97.41474601	−996022	540
.022	−84.87474817	−3678660	−61590	.04425	−97.69601744	−1054251	1714
				.04450	−97.98783139	−1110727	3073
				.04475	−98.29075261	−1164097	4605
.022	−84.87474817	−918697	−3859	.04500	−98.60531479	−1212831	6280
0.023	−85.25507425	−967820	−4340	0.04525	−98.93200529	−1255266	8058
.024	−85.64507852	−1021300	−4902	.04550	−99.27124844	−1289634	9878
.025	−86.04529579	−1079703	−5564	.04575	−99.62338794	−1314131	11667
.026	−86.45631009	−1143696	−6347	.04600	−99.98866875	−1326986	13341
.027	−86.87876135	−1214068	−7285	.04625	−100.36721942	−1326542	14808
0.028	−87.31335329	−1291765	−8414	0.04650	−100.75903551	−1311352	15977
.029	−87.76086288	−1377933	−9804	.04675	−101.16396511	−1280262	16765
.030	−88.22215179	−1473989	−11572	.04700	−101.58169734	−1232498	17110
.031	−88.69818060	−1581761	−13966	.04725	−102.01175454	−1167723	16970
.032	−89.19002703	−1703770	−17534	.04750	−102.45348898	−1086079	16337
0.033	−89.69891115	−1843843	−23430	0.04775	−102.90608421	−988194	15233
				.04800	−103.36856139	−875161	13712
				.04825	−103.83979017	−748487	11850
.0330	−89.69891115	−460588	−1477	.04850	−104.31850383	−610013	9743
.0335	−89.96017153	−480179	−1760	.04875	−104.80331760	− 461825	7494
0.0340	−90.22623371	−501551	−2141	0.04900	−105.29274963	−306151	5204
.0345	−90.49731138	−525092	−2656	.04925	−105.78524317	−145264	2964
.0350	−90.77363998	−551326	−3348	.04950	−106.27918935	18612	851
.0355	−91.05548183	−580957	−4273	.04975	−106.77294941	183378	−1078
.0360	−91.34313326	−614923	−5494	.05000	−107.26487569	347110	−2785
0.0365	−91.63693392	−654458	−7084	0.05025	−107.75333087	508107	−4254
.0370	−91.93727916	−701171	−9123	.05050	−108.23670497	664899	−5478
.0375	−92.24463612	−757116	−11689	.05075	−108.71343009	816260	−6473
.0380	−92.55956423	−824872	−14852	.05100	−109.18199261	961193	−7254
.0385	−92.88274107	−907612	−18660	.05125	−109.64094319	1098910	−7849
0.0390	−93.21499402	−1009145	−23125	0.05150	−110.08890468	1228810	−8287
.0395	−93.55733842	−1133921	−28186	.05175	−110.52457807	1350450	−8593
.0400	−93.91102203	−1286967	−33682	.05200	−110.94674696	1463519	−8798
.0405	−94.27757530	−1473708	−39295				

TABLE 1—*Continued*

t	$B_{e12}(t)$	δ^2	δ^{4*}	t	$B_{e12}(t)$	δ^2	δ^{4*}
				0.068	−104.67908888	4225784	158160
				.069	−103.12444111	3405509	127510
0.0520	−110.94674696	5845294	−140950	.070	−101.53573826	2714121	103509
.0525	−111.74613631	6643765	−143881	.071	−99.91989419	2127335	84742
.0530	−112.47908800	7299011	−143860	.072	−98.28277677	1626137	70018
0.0535	−113.13904959	7810812	−142015	0.073	−96.62939798	1195608	58394
.0540	−113.72090306	8180960	−138548	.074	−94.96406311	823971	49141
.0545	−114.22094693	8412986	−133059	.075	−93.29048853	501857	41704
.0550	−114.63686094	8512491	−124945	.076	−91.61189538	221741	35666
.0555	−114.96765003	8487670	−113760	.077	−89.93108482	−22481	30714
0.0560	−115.21356243	8349703	−99499	0.078	−88.25049907	−235811	26612
.0565	−115.37597780	8112748	−82683	.079	−86.57227144	−422387	23182
.0570	−115.45726568	7793425	−64295	.080	−84.89826767	−585668	20289
.0575	−115.46061931	7409876	−45569	.081	−83.23012058	−728570	17828
.0580	−115.38987419	6980582	−27738	.082	−81.56925920	−853571	15720
0.0585	−115.24932323	6523169	−11817	0.083	−79.91693352	−962790	13902
.0590	−115.04354060	6053423	1538	.084	−78.27423574	−1058058	12325
.0595	−114.77722372	5584636	12028	.085	−76.64211854	−1140957	10951
.0600	−114.45506050	5127304	19704	.086	−75.02141092	−1212870	9748
.0605	−114.08162423	4689154	24829	.087	−73.41283200	−1275005	8689
0.0610	−113.66129643	4275390	27803	0.088	−71.81700313	−1328425	7756
.0615	−113.19821471	3889077	29079	.089	−70.23445851	−1374066	6930
.0620	−112.69624222	3531577	29077	.090	−68.66565455	−1412759	6196
.0625	−112.15895396	3202966	28181	.091	−67.11097817	−1445238	5544
.0630	−111.58963604	2902413	26704	.092	−65.57075417	−1472159	4962
0.0635	−110.99129399	2628491	24886	0.093	−64.04525176	−1494104	4443
.0640	−110.36666703	2379419	22902	.094	−62.53469039	−1511595	3978
.0645	−109.71824589	2153241	20888	.095	−61.03924497	−1525098	3562
.0650	−109.04829234	1947960	18923	.096	−59.55905053	−1535030	3188
				.097	−58.09420638	−1541766	2853
0.065	−109.04829234	7810782	302782	0.098	−56.64477989	−1545642	2551
.066	−107.65180982	6384850	245159	.099	−55.21080982	−1546961	2279
.067	−106.19147881	5205891	196968	.100	−53.79230936	−1545996	2034
t	$B_{e13}(t)$	δ^2	δ^{4*}	t	$B_{e13}(t)$	δ^2	δ^{4*}
0.000	−91.25000000	−2096837	−15435	0.025	−101.30409740	−1644407	−11367
.002	−91.87834297	−2245549	−17164	.026	−101.85129899	−1757944	−13261
.004	−92.52914143	−2411613	−19768	.027	−102.41608001	−1884837	−15602
.006	−93.20405603	−2597612	−23157	.028	−102.99970940	−2027470	−18565
.008	−93.90494675	−2806946	−27385	.029	−103.60361349	−2188892	−22500
0.010	−94.63390693	−3043880	−32614	0.030	−104.22940651	−2373229	−28198
.012	−95.39330590	−3313715	−39209				
.014	−96.18584203	−3623147	−47630				
.016	−97.01460963	−3980739	−58546	0.0300	−104.22940651	−592861	−1774
.018	−97.88318462	−4397618	−72933	.0305	−104.55107700	−618434	−2031
				0.0310	−104.87893183	−646056	−2369
0.018	−97.88318462	−1098258	−4569	.0315	−105.21324721	−676072	−2828
.019	−98.33367575	−1156890	−5130	.0320	−105.55432331	−708952	−3456
.020	−98.79573579	−1220671	−5784	.0325	−105.90248894	−745340	−4331
.021	−99.27000253	−1290259	−6550	.0330	−106.25810796	−786132	−5554
0.022	−99.75717187	−1366426	−7453	0.0335	−106.62158830	−832575	−7234
.023	−100.25800547	−1450082	−8528	.0340	−106.99339439	−886383	−9545
.024	−100.77333989	−1542310	−9814	.0345	−107.37406431	−949903	−12658

TABLE 1—*Continued*

t	$Ber_{15}(t)$	δ^2	δ^4	t	$Ber_{15}(t)$	δ^2	δ^4
0.0350	−107.76423326	−1026289	−16775	0.04850	−129.81942639	2322675	−16809
.0355	−108.16466510	−1119700	−22107	.04875	−130.30967573	2474218	−17018
.0360	−108.57629394	−1235504	−28839	.04900	−130.77518289	2608764	−17130
.0365	−109.00027783	−1380457	−37093	.04925	−131.21460241	2726197	−17161
.0370	−109.43806628	−1562804	−46858	.04950	−131.62675996	2826485	−17116
				0.04975	−132.01065266	2909675	−16989
0.03700	−109.43806628	−389967	−2930	.05000	−132.36544861	2975895	−16769
.03725	−109.66268988	−416928	−3266	.05025	−132.69048561	3025369	−16440
.03750	−109.89148277	−447158	−3618	.05050	−132.98526892	3058428	−15986
.03775	−110.12474724	−481008	−3979	.05075	−133.24946795	3075531	−15394
0.03800	−110.36282179	−518838	−4344	0.05100	−133.48291168	3077269	−14657
.03825	−110.60608473	−561010	−4698				
.03850	−110.85495777	−607874	−5029				
.03875	−111.10990954	−659759	−5319	0.0510	−133.48291168	12294450	−234721
.03900	−111.37145890	−716948	−5542	.0515	−133.85760993	12138254	−204242
0.03925	−111.64017774	−779661	−5673	0.0520	−134.11092565	11779347	−166030
.03950	−111.91669319	−848020	−5676	.0525	−134.24644789	11255310	−123306
.03975	−112.20168883	−922020	−5512	.0530	−134.26941703	10608062	−80155
.04000	−112.49590468	−1001487	−5134	.0535	−134.18630555	9879994	−40429
.04025	−112.80013539	−1086035	−4495	.0540	−134.00439413	9110267	−6913
0.04050	−113.11522645	−1175012	−3540	0.0545	−133.73138005	8332109	19014
.04075	−113.44206763	−1267453	−2219	.0550	−133.37504489	7571414	37265
.04100	−113.78158333	−1362028	−487	.0555	−132.94299558	6846586	48658
.04125	−114.13471932	−1456999	1689	.0560	−132.44248042	6169269	54486
.04150	−114.50242529	−1550188	4320	.0565	−131.88027256	5545574	56151
0.04175	−114.88563315	−1638969	7388	0.0570	−131.26260897	4977426	54944
.04200	−115.28523070	−1720285	10836	.0575	−130.59517112	4463836	51923
.04225	−115.70203110	−1790709	14560	.0580	−129.88309490	4001952	47897
.04250	−116.13673858	−1846549	18407	.0585	−129.13099917	3587867	43437
.04275	−116.58991155	−1884000	22175	.0590	−128.34302476	3217202	38926
0.04300	−117.06192453	−1899341	25629	0.0595	−127.52287834	2885497	34600
.04325	−117.55293091	−1889171	28515	.0600	−126.67387695	2588455	30593
.04350	−118.06282900	−1850651	30591	.0605	−125.79899102	2322082	26965
.04375	−118.59123360	−1781747	31656	.0610	−124.90088426	2082755	23733
.04400	−119.13745567	−1681420	31576	.0615	−123.98194994	1867241	20887
0.04425	−119.70049194	−1549758	30311	0.0620	−123.04434322	1672687	18399
.04450	−120.27902579	−1388014	27921	.0625	−122.09000963	1496598	16234
.04475	−120.87143978	−1198548	24556	.0630	−121.12071007	1336803	14357
.04500	−121.47583925	−984679	20444	.0635	−120.13804247	1191418	12732
.04525	−122.09008551	−750464	15853	.0640	−119.14346069	1058809	11325
0.04550	−122.71183641	−500438	11065				
.04575	−123.33859169	−239337	6336	0.064	−119.14346069	4246601	180799
.04600	−123.96774034	28156	1884	.065	−117.12374529	3314912	144464
.04625	−124.59660742	297619	−2137	.066	−115.07088079	2529554	116991
.04650	−125.22249832	565052	−5629	.067	−112.99272074	1862554	95986
0.04675	−125.84273869	826971	−8557	0.068	−110.89593516	1292540	79710
.04700	−126.45470935	1080447	−10927	.069	−108.78622418	802973	66914
.04725	−127.05587554	1323101	−12785	.070	−106.66848347	380866	56708
.04750	−127.64381072	1553063	−14193	.071	−104.54693410	15879	48453
.04775	−128.21621527	1768909	−15229	.072	−102.42522593	−300340	41688
0.04800	−128.77093073	1969588	−15965	0.073	−100.30652117	−574629	36078
.04825	−129.30595031	2154350	−16473	.074	−98.19356270	−812649	31378

TABLE 1 (*Continued*)

t	$Be_{13}(t)$	δ^2	δ^4	t	$Be_{13}(t)$	δ^2	δ^4
0.075	−96.08873072	−1019139	27401	0.088	−70.11190558	−2082516	5565
.076	−93.99409012	−1198104	24012	.089	−68.24773623	−2096181	4938
.077	−91.91143057	−1352958	21102	.090	−66.40452868	−2104892	4380
.078	−89.84230060	−1486626	18589	.091	−64.58237006	−2109212	3881
.079	−87.78803688	−1601636	16407	.092	−62.78130355	−2109640	3436
0.080	−85.74978953	−1700181	14505	0.093	−61.00133344	−2106622	3037
.081	−83.72854399	−1784172	12840	.094	−59.24242955	−2100558	2681
.082	−81.72514018	−1855279	11379	.095	−57.50453123	−2091805	2362
.083	−79.74028915	−1914972	10092	.096	−55.78755097	−2080684	2076
.084	−77.77458785	−1964541	8956	.097	−54.09137755	−2067482	1819
0.085	−75.82853195	−2005127	7950	0.098	−52.41587895	−2052455	1589
.086	−73.90252733	−2037739	7060	.099	−50.76090490	−2035834	1383
.087	−71.99690010	−2063271	6268	.100	−49.12628919	−2017826	1198
t	$Be_{14}(t)$	δ^2	δ^4	t	$Be_{14}(t)$	δ^2	δ^4
0.000	−105.25000000	−2786859	−21936	0.0330	−124.68417902	−1411529	−26178
.002	−106.02914592	−3000426	−26164	.0335	−125.19022446	−1549230	−35657
.004	−106.83829610	−3240275	−30946	.0340	−125.71176220	−1723192	−48084
.006	−107.67984903	−3511281	−36737				
.008	−108.55651477	−3819330	−44001				
0.010	−109.47137382	−4171798	−53239	0.03400	−125.71176220	−430043	−3011
.012	−110.42795084	−4578067	−65130	.03425	−125.97886695	−456016	−3476
.014	−111.43030854	−5050245	−80678	.03450	−126.25053186	−485476	−3994
				.03475	−126.52705153	−518942	−4567
				.03500	−126.80876062	−556984	−5187
0.014	−111.43030854	−1261293	−5056	0.03525	−127.09603956	−600223	−5855
.015	−111.95010092	−1327538	−5654	.03550	−127.38932073	−649324	−6554
.016	−112.48316869	−1399457	−6354	.03575	−127.68909514	−704982	−7274
.017	−113.03023102	−1477754	−7168	.03600	−127.99591936	−767914	−7988
.018	−113.59207089	−1563249	−8121	.03625	−128.31042273	−838826	−8668
0.019	−114.16954325	−1656900	−9249	0.03650	−128.63331435	−918389	−9268
.020	−114.76358461	−1759845	−10586	.03675	−128.96538986	−1007192	−9735
.021	−115.37522442	−1873431	−12190	.03700	−129.30753730	−1105688	−9998
.022	−116.00559854	−1999276	−14123	.03725	−129.66074161	−1214121	−9970
.023	−116.65596543	−2139333	−16481	.03750	−130.02608712	−1332441	−9546
0.024	−117.32772565	−2295986	−19380	0.03775	−130.40475705	−1460200	−8607
.025	−118.02244573	−2472169	−22991	.03800	−130.79802898	−1596432	−7020
.026	−118.74188750	−2671553	−27562	.03825	−131.20726522	−1739523	−4653
.027	−119.48804480	−2898812	−33518	.03850	−131.63389669	−1887080	−1379
				.03875	−132.07939896	−2035812	2895
0.0270	−119.48804480	−724175	−2102	0.03900	−132.54525936	−2181439	8206
.0275	−119.87183951	−755599	−2340	.03925	−133.03293414	−2318660	14504
.0280	−120.26319022	−789373	−2628	.03950	−133.54379553	−2441213	21625
.0285	−120.66243465	−825790	−2986	.03975	−134.07906905	−2542040	29262
.0290	−121.06993699	−865216	−3451	.04000	−134.63976296	−2613596	36967
0.0295	−121.48609149	−908127	−4074	0.04025	−135.22659283	−2648292	44168
.0300	−121.91132726	−955164	−4938	.04050	−135.83990562	−2639056	50222
.0305	−122.34611468	−1007215	−6163	.04075	−136.47960897	−2579962	54498
.0310	−122.79097424	−1065543	−7922	.04100	−137.14511194	−2466837	56472
.0315	−123.24648925	−1131956	−10451	.04125	−137.83528328	−2297771	55828
0.0320	−123.71332381	−1209048	−14064	0.04150	−138.54843232	−2073417	52516
.0325	−124.19224886	−1300511	−19150	.04175	−139.28231553	−1797038	46780

TABLE 1 (*Continued*)

t	$B_{6,4}(t)$	δ^2	δ^4	t	$B_{6,4}(t)$	δ^2	δ^4	t
0.04200	−140.03416912	−1474275	39105	0.0575	−141.57645396	2231530	27807	0.000
.04225	−140.80076546	−1112669	30147	.0580	−140.39356161	1983890	24195	.002
.04250	−141.57848849	−721036	20619	.0585	−139.19083035	1760560	21138	.004
.04275	−142.36342188	−308770	11186	.0590	−137.97049349	1558466	18551	.006
.04300	−143.15144297	114807	2390	.0595	−136.73457197	1375005	16356	.008
0.04325	−143.93831599	540976	−5395	0.0600	−135.48490040	1207968	14488	0.010
.04350	−144.71977925	961992	−11983	.0605	−134.22314915	1055475	12893	.012
.04375	−145.49162259	1371280	−17309	.0610	−132.95084315	915923	11525	
.04400	−146.24975314	1763496	−21483	.0615	−131.66937792	787936	10347	
.04425	−146.99024873	2134441	−24619	.0620	−130.38003333	670328	9326	0.012
0.04450	−147.70939992	2480939	−26929					0.013
.04475	−148.40374173	2800643	−28588	0.062	−130.38003333	2690665	148921	.014
.04500	−149.07007710	3091859	−29765	.063	−127.78231685	1856808	122380	.015
.04525	−149.70549389	3353385	−30591	.064	−125.16603229	1146615	101876	.016
.04550	−150.30737682	3584377	−31152	.065	−122.53828158	539224	85729	.017
0.04575	−150.87341598	3784264	−31496	0.066	−119.90513863	18242	72787	0.018
.04600	−151.40161250	3952700	−31628	.067	−117.27181325	−429445	62251	.019
.04625	−151.89028203	4089556	−31530	.068	−114.64278233	−814492	53558	.020
.04650	−152.33805600	4194939	−31157	.069	−112.02189633	−1145680	46302	.021
.04675	−152.74388058	4269232	−30464	.070	−109.41246713	−1430326	40187	.022
0.04700	−153.10701283	4313135	−29408	0.071	−106.81734119	−1674592	34993	0.023
.04725	−153.42701373	4327709	−27964	.072	−104.23896116	−1883707	30551	.024
.04750	−153.70373754	4314399	−26128	.073	−101.67941821	−2062142	26730	.025
.04775	−153.93731736	4275036	−23925	.074	−99.14049669	−2213739	23428	.026
.04800	−154.12814682	4211812	−21406	.075	−96.62371255	−2341816	20563	
0.04825	−154.27685816	4127231	−18648	0.076	−94.13034656	−2449252	18069	0.0260
.04850	−154.38429720	4024033	−15738	.077	−91.66147310	−2538553	15891	.0265
.04875	−154.45149590	3905107	−12778	.078	−89.21798517	−2611908	13983	.0270
.04900	−154.47964354	3773395	−9861	.079	−86.80061632	−2671230	12310	.0275
.04925	−154.47005722	3631796	−7075	.080	−84.40995977	−2718201	10838	.0280
0.04950	−154.42415295	3483080	−4492	0.081	−82.04648523	−2754298	9541	0.0285
.04975	−154.34341787	3329820	−2166	.082	−79.71055367	−2780822	8397	.0290
.05000	−154.22938460	3174334	−129	.083	−77.40243034	−2798921	7386	.0295
				.084	−75.12229621	−2809610	6492	.0300
				.085	−72.87025819	−2813785	5700	.0305
0.0500	−154.22938460	12697145	−1618	0.086	−70.64635802	−2812241	4998	0.0310
.0505	−153.90764481	11461053	48952	.087	−68.45058025	−2805683	4375	.0315
.0510	−153.47129448	10270173	80958	.088	−66.28285932	−2794735	3822	.0320
.0515	−152.93224243	9157111	97602	.089	−64.14308574	−2779953	3330	
.0520	−152.30161927	8139301	102918	.090	−62.03111168	−2761830	2893	
0.0525	−151.58960310	7222825	100715	0.091	−59.94675593	−2740804	2504	0.03200
.0530	−150.80535868	6406110	94071	.092	−57.88980822	−2717266	2157	.03225
.0535	−149.95705317	5682978	85223	.093	−55.86003317	−2691562	1849	.03250
.0540	−149.05191787	5044896	75656	.094	−53.85717375	−2664003	1575	.03275
.0545	−148.09633362	4482492	66277	.095	−51.88095435	−2634862	1330	.03300
0.0550	−147.09592444	3986493	57580	0.096	−49.93108357	−2604385	1113	0.03325
.0555	−146.05565033	3548255	49792	.097	−48.00725664	−2572791	919	.03350
.0560	−144.97989368	3160006	42975	.098	−46.10915762	−2540272	747	.03375
.0565	−143.87253696	2814923	37095	.099	−44.23646133	−2507003	594	.03400
.0570	−142.73703102	2507112	32073	.100	−42.38883506	−2473137	457	.03425

TABLE 1 (*Continued*)

t	$B_{c13}(t)$	δ^2	δ^4	t	$B_{c13}(t)$	δ^2	δ^4
0.000	−120.25000000	−3635858	−33368	0.03450	−147.46947271	−1253289	−15619
.002	−121.20252185	−3934396	−39518	.03475	−147.88465023	−1387767	−16538
.004	−122.19438766	−4272745	−47077	.03500	−148.31370543	−1538692	−17028
.006	−123.22898092	−4658586	−56617	.03525	−148.75814754	−1706510	−16874
.008	−124.31016004	−5101605	−68814	.03550	−149.21965475	−1891014	−15822
0.010	−125.44235521	−5614204	−84619	0.03575	−149.70007210	−2091091	−13569
.012	−126.63069243	−6212489	−105416	.03600	−150.20140037	−2304421	−9788
				.03625	−150.72577284	−2527159	−4162
				.03650	−151.27541690	−2753629	3575
0.012	−126.63069243	−1551465	−6604	.03675	−151.85259725	−2976069	13552
0.013	−127.24774509	−1635677	−7414	0.03700	−152.45953829	−3184526	25678
.014	−127.88115453	−1727330	−8355	.03725	−153.09832458	−3366960	39548
.015	−128.53183727	−1827373	−9460	.03750	−153.77078048	−3509662	54379
.016	−129.20079373	−1936915	−10757	.03775	−154.47833299	−3598041	68996
.017	−129.88911935	−2057265	−12299	.03800	−155.22186592	−3617777	81932
0.018	−130.59801762	−2189976	−14137	0.03825	−156.00157662	−3556245	91616
.019	−131.32881565	−2336903	−16352	.03850	−156.81684977	−3404038	96662
.020	−132.08298271	−2500281	−19039	.03875	−157.66616329	−3156288	96162
.021	−132.86215258	−2682826	−22334	.03900	−158.54703969	−2813533	89918
.022	−133.66815072	−2887870	−26415	.03925	−159.45605142	−2381903	78502
0.023	−134.50302755	−3119549	−31532	0.03950	−160.38888217	−1872568	63160
.024	−135.36909987	−3383056	−38035	.03975	−161.34043860	−1300549	45500
.025	−136.26900274	−3685019	−46454	.04000	−162.30500052	−683165	27237
.026	−137.20575581	−4034097	−57731	.04025	−163.27639409	−38386	9816
				.04050	−164.24817152	616583	−5703
0.0260	−137.20575581	−1007613	−3627	0.04075	−165.21378312	1266342	−18754
.0265	−137.68902069	−1056428	−4091	.04100	−166.16673130	1897873	−29195
.0270	−138.18284984	−1109358	−4671	.04125	−167.10070075	2500705	−37202
.0275	−138.68777258	−1166996	−5418	.04150	−168.00966315	3066757	−43152
.0280	−139.20436527	−1230110	−6430	.04175	−168.88795798	3589993	−47482
0.0285	−139.73325906	−1299742	−7852	0.04200	−169.73035289	4065997	−50618
.0290	−140.27515028	−1377366	−9920	.04225	−170.53208782	4491565	−52896
.0295	−140.83081514	−1465121	−12982	.04250	−171.28890711	4864374	−54538
.0300	−141.40113122	−1566177	−17543	.04275	−171.99708265	5182759	−55649
.0305	−141.98710907	−1685237	−24294	.04300	−172.65343060	5445609	−56221
0.0310	−142.58993928	−1829238	−34134	0.04325	−173.25532246	5652369	−56171
.0315	−143.21106187	−2008242	−48153	.04350	−173.80069062	5803112	−55373
.0320	−143.85226688	−2236508	−67555	.04375	−174.28802767	5898662	−53700
				.04400	−174.71637809	5940708	−51067
				.04425	−175.08532143	5931885	−47459
0.03200	−143.85226688	−558063	−4233	0.04450	−175.39494593	5875788	−42944
.03225	−144.18108943	−592498	−4989	.04475	−175.64581254	5776899	−37675
.03250	−144.51583697	−631945	−5853	.04500	−175.83891017	5640444	−31874
.03275	−144.85690395	−677267	−6829	.04525	−175.97560335	5472171	−25801
.03300	−145.20474360	−729442	−7919	.04550	−176.05757481	5278099	−19726
0.03325	−145.55987767	−789556	−9113	0.04575	−176.08676529	5064251	−13899
.03350	−145.92290730	−858802	−10398	.04600	−176.06531325	4836412	−8526
.03375	−146.29452495	−938459	−11747	.04625	−175.99549710	4599924	−3756
.03400	−146.67552719	−1029865	−13114	.04650	−175.87968169	4359541	325
.03425	−147.06682808	−1134374	−14435	.04675	−175.72027089	4119334	3684

TABLE 1 (*Continued*)

t	$B_{218}(t)$	δ^2	δ^{4*}	t	$B_{218}(t)$	δ^2	δ^{4*}
0.04700	−175.51966673	3882667	6336	0.063	−131.98739744	−784179	86215
.04725	−175.28023591	3652200	8330	.064	−128.77567278	−1285513	73822
.04750	−175.00428308	3429943	9740	.065	−125.57680325	−1712592	63485
.04775	−174.69403082	3217322	10648	.066	−122.39505964	−2075842	54786
.04800	−174.35160534	3015263	11140	.067	−119.23407445	−2384029	47413
0.04825	−173.97902722	2824274	11300	0.068	−116.09692954	−2644575	41126
.04850	−173.57820637	2644531	11202	.069	−112.98623039	−2863808	35738
.04875	−173.15094020	2475950	10913	.070	−109.90416932	−3047146	31102
.04900	−172.69891454	2318252	10488	.071	−106.85257972	−3199251	27099
				.072	−103.83298262	−3324145	23630
0.0490	−172.69891454	9283478	168059	0.073	−100.84662697	−3425314	20618
.0495	−171.72678794	8144412	150535	.074	− 97.89452446	−3505783	17996
.0500	−170.67321722	7155441	131249	.075	−94.97747978	−3568186	15709
.0505	−169.54809208	6297790	112556	.076	−92.09611697	−3614821	13709
.0510	−168.35998905	5553025	95615	.077	−89.25090236	−3647695	11959
0.0515	−167.11635577	4904310	80862	0.078	−86.44216471	−3668566	10424
.0520	−165.82367939	4336905	68325	.079	−83.67011272	−3678974	9077
.0525	−164.48763396	3838245	57830	.080	−80.93485048	−3680271	7892
.0530	−163.11320608	3397782	49121	.081	−78.23639094	−3673647	6850
.0535	−161.70480038	3006755	41925	.082	−75.57466788	−3660147	5933
0.0540	−160.26632713	2657914	35986	0.083	−72.94954628	−3640692	5124
.0545	−158.80127475	2345274	31079	.084	−70.36083161	−3616093	4410
.0550	−157.31276962	2063888	27011	.085	−67.80827786	−3587067	3781
.0555	−155.80362562	1809656	23625	.086	−65.29159478	−3554244	3225
.0560	−154.27638505	1579165	20791	.087	−62.81045414	−3518183	2734
0.0565	−152.73335284	1369558	18405	0.088	−60.36449533	−3479376	2301
.0570	−151.17662505	1178432	16382	.089	−57.95333028	−3438257	1918
.0575	−149.60811295	1003749	14656	.090	−55.57654780	−3395211	1580
.0580	−148.02956335	843774	13174	.091	−53.23371743	−3350577	1281
.0585	−146.44257601	697015	11891	.092	−50.92439283	−3304655	1018
0.0590	−144.84861852	562181	10775	0.093	−48.64811478	−3257708	785
.0595	−143.24903922	438151	9797	.094	−46.40441382	−3209971	580
.0600	−141.64507841	323941	8935	.095	−44.19281256	−3161649	399
.0605	−140.03787819	218687	8171	.096	−42.01282780	−3112923	241
.0610	−138.42849110	121621	7491	.097	−39.86397227	−3063952	101
				0.098	−37.74575626	−3014877	−21
0.061	−138.42849110	493990	119690	.099	−35.65768901	−2965819	−129
.062	−135.20696389	−196076	101237	.100	−33.59927996	−2916888	−222

TABLE 2. *Values of* $Bo_r(t)$

Index

r	Range of t	Page
1	0.074(.002)0.1	188
2	0.054(.002)0.1	188
3	0.054(.002)0.1	188
4	0.050(.002)0.1	188
5	0.038(.002)0.1	188
6	0.038(.002)0.1	189
7	0.038(.002)0.1	189
8	0.036(.002)0.058(.001)0.1	189
9	0.032(.002)0.040(.001)0.1	190
10	0.028(.002)0.036(.001)0.1	191
11	0.024(.002)0.032(.001)0.050(.0005)0.060(.001)0.1	191
12	0.028(.001)0.039(.0005)0.058(.001)0.1	192
13	0.027(.001)0.035(.0005)0.062(.001)0.1	193
14	0.025(.001)0.031(.0005)0.059(.001)0.1	194
15	0.021(.001)0.029(.0005)0.056(.001)0.1	195

For values of t smaller than the first one listed for each r, $Bo_r(t) = Be_{r-1}(t)$ to eight decimals or better. (See tables of $Be_r(t)$ in this volume)

For $t > 0.1$ (i.e. for $s < 100$), see tables of $bo_r(s)$ in *Tables Relating to Mathieu Functions*, National Bureau of Standards. Columbia University Press, New York, 1951

TABLE 2. *Values of* $Bo_r(t)$

t	$Bo_1(t)$	δ^{2*}		t	$Bo_1(t)$	δ^{2*}	
0.074	−0.25490515	−49		0.088	−0.25590337	−52	
.076	−.25504625	−49		.090	−.25604801	−52	
.078	−.25518784	−50		.092	−.25619316	−52	
.080	−.25532994	−50		.094	−.25633884	−52	
.082	−.25547253	−51		.096	−.25648504	−52	
0.084	−0.25561563	−51		0.098	−0.25663175	−52	
.086	−.25575925	−51		.100	−.25677898	−51	
t	$Bo_2(t)$	δ^{2*}		t	$Bo_2(t)$	δ^{2*}	
0.054	−1.28264673	−771		0.078	−1.29886410	−906	
.056	−1.28395321	−781		.080	−1.30027164	−917	
.058	−1.28526750	−792		.082	−1.30168834	−927	
.060	−1.28658971	−802		.084	−1.30311431	−936	
.062	−1.28791995	−813		.086	−1.30454963	−943	
0.064	−1.28925832	−824		0.088	−1.30599438	−948	
.066	−1.29060492	−835		.090	−1.30744859	−949	
.068	−1.29195989	−847		.092	−1.30891229	−947	
.070	−1.29332332	−859		.094	−1.31038545	−940	
.072	−1.29469534	−870		.096	−1.31186800	−926	
0.074	−1.29607606	−882		0.098	−1.31335979	−906	
.076	−1.29746561	−894		.100	−1.31486062	−876	
t	$Bo_3(t)$	δ^{2*}		t	$Bo_3(t)$	δ^{2*}	
0.054	−3.38126695	−4913		0.078	−3.45024892	−6194	
.056	−3.38672012	−5011		.080	−3.45637497	−6261	
.058	−3.39222340	−5112		.082	−3.46256358	−6299	
.060	−3.39777781	−5217		.084	−3.46881510	−6297	
.062	−3.40338439	−5325		.086	−3.47512950	−6244	
0.064	−3.40904423	−5435		0.088	−3.48150622	−6125	
.066	−3.41475842	−5549		.090	−3.48794403	−5926	
.068	−3.42052811	−5664		.092	−3.49444093	−5630	
.070	−3.42635445	−5780		.094	−3.50099392	−5221	
.072	−3.43223858	−5895		.096	−3.50759889	−4681	
0.074	−3.43818166	−6005		0.098	−3.51425039	−3993	
.076	−3.44418477	−6107		.100	−3.52094153	−3140	
t	$Bo_4(t)$	δ^{2*}		t	$Bo_4(t)$	δ^{2*}	
0.050	−6.57438997	−18790		0.076	−6.78616623	−25694	
.052	−6.58939210	−19309		.078	−6.80413169	−25492	
.054	−6.60458737	−19853		.080	−6.82235131	−24877	
.056	−6.61998122	−20421		.082	−6.84081872	−23731	
.058	−6.63557932	−21014		.084	−6.85952224	−21930	
0.060	−6.65138761	−21631		0.086	−6.87844361	−19343	
.062	−6.66741223	−22267		.088	−6.89755673	−15839	
.064	−6.68365955	−22916		.090	−6.91682633	−11297	
.066	−6.70013603	−23565		.092	−6.93620681	−5610	
.068	−6.71684811	−24193		.094	−6.95564113	1308	
0.070	−6.73380202	−24770		0.096	−6.97506001	9513	
.072	−6.75100345	−25252		.098	−6.99438137	19030	
.074	−6.76845713	−25584		.100	−7.01351005	29845	
t	$Bo_5(t)$	δ^{2}	δ^{4*}	t	$Bo_5(t)$	δ^{2}	δ^{4*}
0.038	−10.75824418	−46918	−80	0.048	−10.91679814	−55663	−117
.040	−10.78895146	−48480	−86	.050	−10.95010395	−57732	−125
.042	−10.82014355	−50128	−93	.052	−10.98398708	−59925	−129
.044	−10.85183691	−51869	−101	.054	−11.01846945	−62244	−124
.046	−10.88404897	−53712	−109	.056	−11.05357427	−64685	−104

TABLE 2 (*Continued*)

t	$Bo_5(t)$	δ^2	δ^{4*}	t	$Bo_5(t)$	δ^2	δ^{4*}
0.058	−11.08932593	−67224	−57	0.080	−11.53046855	−39846	5045
.060	−11.12574983	−69811	30	.082	−11.57447265	−19833	5535
.062	−11.16287184	−72357	176	.084	−11.61867508	5673	5822
.064	−11.20071743	−74711	398	.086	−11.66282079	36948	5854
.066	−11.23931012	−76647	714	.088	−11.70659701	74020	5602
0.068	−11.27866929	−77849	1132	0.090	−11.74963303	116634	5054
.070	−11.31880695	−77897	1658	.092	−11.79150270	164246	4227
.072	−11.35972359	−76269	2280	.094	−11.83172991	216035	3160
.074	−11.40140291	−72346	2973	.096	−11.86979678	270947	1913
.076	−11.44380569	−65443	3702	.098	−11.90515419	327749	551
0.078	−11.48686291	−54843	4412	0.100	−11.93723410	385102	−820

t	$Bo_6(t)$	δ^2	δ^{4*}	t	$Bo_6(t)$	δ^2	δ^{4*}
0.038	−16.19402257	−115546	−325	0.070	−17.31871445	−147885	15427
.040	−16.25305645	−120532	−358	.072	−17.40366023	−105442	18308
.042	−16.31329566	−125877	−397	.074	−17.48966044	−44852	20407
.044	−16.37479363	−131619	−437	.076	−17.57610917	35900	21301
.046	−16.43760780	−137798	−478	.078	−17.66219889	137644	20667
0.048	−16.50179996	−144453	−508	0.080	−17.74691218	259718	18360
.050	−16.56743664	−151608	−508	.082	−17.82902829	399829	14448
.052	−16.63458941	−159255	−435	.084	−17.90714611	554124	9227
.054	−16.70333473	−167308	−227	.086	−17.97972270	717476	3166
.056	−16.77375313	−175541	205	.088	−18.04512453	883937	−3168
0.058	−16.84592694	−183500	969	0.090	−18.10168699	1047285	−9220
.060	−16.91993576	−190399	2178	.092	−18.14777660	1201566	−14501
.062	−16.99584856	−195011	3920	.094	−18.18185055	1341567	−18685
.064	−17.07371148	−195590	6229	.096	−18.20250883	1463141	−21591
.066	−17.15353030	−189839	9050	.098	−18.20853570	1563386	−23208
0.068	−17.23524752	−174972	12213	0.100	−18.19892871	1640665	−23641

t	$Bo_7(t)$	δ^2	δ^{4*}	t	$Bo_7(t)$	δ^2	δ^{4*}
0.038	−22.84623335	−254402	−1145	0.070	−24.90724364	234545	64464
.040	−22.94989993	−268407	−1294	.072	−25.05684615	542328	55841
.042	−23.05625058	−283709	−1459	.074	−25.20102537	904489	39846
.044	−23.16543832	−300467	−1618	.076	−25.33615971	1305403	18358
.046	−23.27763073	−318823	−1703	.078	−25.45824001	1724167	−5648
0.048	−23.39301137	−338832	−1568	0.080	−25.56307864	2137424	−28886
.050	−23.51178033	−360301	−939	.082	−25.64654303	2522496	−48542
.052	−23.63415230	−382513	606	.084	−25.70478246	2860097	−62802
.054	−23.76034940	−403816	3617	.086	−25.73442092	3136109	−71006
.056	−23.89058467	−421088	8665	.088	−25.73269830	3342274	−73476
0.058	−24.02503081	−429207	16157	0.090	−25.69755294	3475937	−71176
.060	−24.16376903	−420694	26077	.092	−25.62764821	3539151	−65359
.062	−24.30671419	−385775	37745	.094	−25.52235196	3537479	−57287
.064	−24.45351710	−313083	49684	.096	−25.38168093	3478768	−48061
.066	−24.60345084	−191111	59722	.098	−25.20622222	3372065	−38544
0.068	−24.75529569	−10311	65372	0.100	−24.99704285	3226756	−29362

t	$Bo_8(t)$	δ^2	δ^{4*}	t	$Bo_8(t)$	δ^2	δ^{4*}
0.036	−30.60787030	−486206	−3156	0.048	−31.68770893	−742222	128
.038	−30.77356474	−518653	−3657	.050	−31.89080650	−793718	8990
.040	−30.94444571	−554766	−4223	.052	−32.10184125	−834698	25396
.042	−31.12087435	−595081	−4740	.054	−32.32122297	−848446	51147
.044	−31.30325380	−640033	−4854	.056	−32.54908916	−809378	85721
0.046	−31.49203358	−689557	−3738	0.058	−32.78504912	−683834	124749

TABLE 2 (*Continued*)

t	$Bos(t)$	δ^2	δ^4*	t	$Bos(t)$	δ^2	δ^4*
0.058	−32.78504912	−172901	7783	0.079	−34.62241003	1586669	−12509
.059	−32.90571600	−146456	8939	.080	−34.59908069	1622264	−12231
.060	−33.02784743	−111103	9944	.081	−34.55952871	1645676	−11727
.061	−33.15108989	−65857	10704	.082	−34.50351998	1657398	−11043
.062	−33.27499093	−9976	11129	.083	−34.43093726	1658104	−10226
0.063	−33.39899174	56949	11143	0.084	−34.34177351	1648604	−9317
.064	−33.52242304	134924	10695	.085	−34.23612372	1629798	−8352
.065	−33.64450511	223495	9762	.086	−34.11417595	1602646	−7364
.066	−33.76435223	321732	8359	.087	−33.97620172	1568129	−6378
.067	−33.88098202	428243	6539	.088	−33.82254620	1527230	−5415
0.068	−33.99332939	541225	4386	0.089	−33.65361837	1480909	−4491
.069	−34.10026452	658547	2009	.090	−33.46988146	1430085	−3620
.070	−34.20061418	777856	−469	.091	−33.27184370	1375629	−2809
.071	−34.29318527	896702	−2923	.092	−33.06004964	1318351	−2064
.072	−34.37678934	1012653	−5237	.093	−32.83507206	1258995	−1388
0.073	−34.45026689	1123415	−7315	0.094	−32.59750454	1198236	−783
.074	−34.51251027	1226926	−9083	.095	−32.34795466	1136680	−247
.075	−34.56248440	1321425	−10497	.096	−32.08703798	1074863	222
.076	−34.59924428	1405505	−11534	.097	−31.81537268	1013255	627
.077	−34.62194911	1478126	−12199	.098	−31.53357483	952261	971
0.078	−34.62987267	1538621	−12512	0.099	−31.24225437	892227	1259
				.100	−30.94201165	833441	1496

t	$Bos(t)$	δ^2	δ^4*	t	$Bos(t)$	δ^2	δ^4*
0.032	−39.29449364	−797677	−6504	0.063	−44.20921055	1205803	3012
.034	−39.53583656	−857888	−7691	.064	−44.36117981	1453787	−4249
.036	−39.78575836	−925841	−9156	.065	−44.49861119	1697580	−11223
.038	−40.04493857	−1002981	−10862	.066	−44.61906677	1930295	−17476
.040	−40.31414860	−1090889	−12362	.067	−44.72021939	2145744	−22688
				0.068	−44.79991457	2338756	−26664
0.040	−40.31414860	−272533	−764	.069	−44.85622219	2505370	−29335
.041	−40.45278490	−284631	−777	.070	−44.88747611	2642907	−30740
.042	−40.59426750	−297495	−738	.071	−44.89230095	2749940	−30993
.043	−40.73872506	−311078	−615	.072	−44.86962640	2826183	−30260
0.044	−40.88629339	−325249	−359	0.073	−44.81869001	2872331	−28730
.045	−41.03711421	−339738	91	.074	−44.73903032	2889874	−26597
.046	−41.19133241	−354080	808	.075	−44.63047188	2880907	−24044
.047	−41.34909142	−367543	1872	.076	−44.49310437	2847951	−21233
.048	−41.51052585	−379047	3357	.077	−44.32725735	2793788	−18303
0.049	−41.67575075	−387095	5324	0.078	−44.13347244	2721324	−15370
.050	−41.84484660	−389717	7797	.079	−43.91247430	2633473	−12523
.051	−42.01783962	−384445	10748	.080	−43.66514143	2533068	−9829
.052	−42.19467710	−368351	14078	.081	−43.39247788	2422793	−7338
.053	−42.37519808	−338142	17604	.082	−43.09558639	2305132	−5080
0.054	−42.55910049	−290346	21062	0.083	−42.77564358	2182340	−3072
.055	−42.74590636	−221574	24113	.084	−42.43387737	2056423	−1318
.056	−42.93492797	−128850	26382	.085	−42.07154693	1929137	184
.057	−43.12523809	−9981	27498	.086	−41.68992512	1801986	1447
.058	−43.31564801	136091	27157	.087	−41.29028344	1676236	2486
0.059	−43.50469703	308987	25175	0.088	−40.87387941	1552929	3320
.060	−43.69065618	506721	21530	.089	−40.44194609	1432904	3969
.061	−43.87154813	725681	16383	.090	−39.99568373	1316815	4456
.062	−44.04518327	960785	10060	.091	−39.53625322	1205153	4803

TABLE 2 (*Continued*)

t	$Bo_9(t)$	δ^2	δ^4	t	$Bo_9(t)$	δ^2	δ^4
0.092	−39.06477119	1098268	5028	0.096	−37.07894679	721673	5082
.093	−38.58230647	996391	5152	.097	−36.56222412	640335	4957
.094	−38.08987785	899648	5193	.098	−36.03909809	563948	4801
.095	−37.58845274	808084	5165	.099	−35.51033258	492357	4620
				.100	−34.97664350	425383	4424
t	$Bo_{10}(t)$	δ^2	δ^4	t	$Bo_{10}(t)$	δ^2	δ^4
0.028	−48.93882386	−1202408	−11584	0.065	−56.52998671	4602315	−69824
.030	−49.27114088	−1301872	−13884	.066	−56.48517156	4711483	−66433
.032	−49.61647662	−1415353	−16830	.067	−56.39324157	4754647	−60969
.034	−49.97596589	−1545821	−20620	.068	−56.25376511	4737135	−54105
.036	−50.35091338	−1697009	−25236	.069	−56.06691731	4665687	−46444
				0.070	−55.83341263	4547860	−38492
0.036	−50.35091338	−423861	−1566	.071	−55.55442936	4391521	−30652
.037	−50.54464716	−445002	−1702	.072	−55.23153088	4204449	−23227
.038	−50.74283095	−467836	−1800	.073	−54.86658790	3994025	−16426
.039	−50.94569311	−492449	−1806	.074	−54.46170468	3767020	−10381
0.040	−51.15347975	−518828	−1628	0.075	−54.01915126	3529467	−5154
.041	−51.36645468	−546768	−1132	.076	−53.54130316	3286590	−758
.042	−51.58489728	−575732	−128	.077	−53.03058917	3042791	2839
.043	−51.80909721	−604668	1625	.078	−52.48944726	2801677	5691
.044	−52.03934382	−631769	4397	.079	−51.92028859	2566116	7875
0.045	−52.27590812	−654210	8454	0.080	−51.32546875	2338310	9474
.046	−52.51901452	−667897	13993	.081	−50.70726582	2119874	10574
.047	−52.76879988	−667285	21059	.082	−50.06786415	1911926	11258
.048	−53.02525809	−645352	29454	.083	−49.40934321	1715166	11605
.049	−53.28816983	−593812	38662	.084	−48.73367061	1529955	11682
0.050	−53.55701968	−503635	47807	0.085	−48.04269846	1356383	11552
.051	−53.83090588	−365917	55702	.086	−47.33816248	1194329	11265
.052	−54.10845125	−173034	60986	.087	−46.62168320	1043517	10865
.053	−54.38772696	80041	62366	.088	−45.89476876	903552	10386
.054	−54.66620225	394504	58895	.089	−45.15881879	773963	9858
0.055	−54.94073251	766818	50239	0.090	−44.41512920	654226	9303
.056	−55.20759459	1188415	36819	.091	−43.66489735	543790	8737
.057	−55.46257251	1646104	19779	.092	−42.90922759	442091	8173
.058	−55.70108939	2123175	783	.093	−42.14913693	348567	7621
.059	−55.91837453	2601005	−18306	.094	−41.38556060	262668	7088
0.060	−56.10964961	3060851	−35762	0.095	−40.61935759	183861	6578
.061	−56.27031619	3485526	−50254	.096	−39.85131597	111639	6094
.062	−56.39612751	3860706	−60975	.097	−39.08215796	45516	5638
.063	−56.48333176	4175730	−67650	.098	−38.31254479	−14963	5210
.064	−56.52877871	4423895	−70443	.099	−37.54308125	−70225	4810
				0.100	−36.77431996	−120672	4438
t	$Bo_{11}(t)$	δ^2	δ^4	t	$Bo_{11}(t)$	δ^2	δ^4
0.024	−59.45834307	−1685185	−18175	0.036	−62.38981746	−757890	−3908
.026	−59.89463889	−1833686	−21984	.037	−62.67503599	−804358	−3906
.028	−60.34927157	−2004408	−26912	.038	−62.96829809	−854613	−3358
.030	−60.82394833	−2202369	−33415	.039	−63.27010633	−908010	−1807
.032	−61.32064878	−2434168	−42147	.040	−63.58099467	−962866	1391
				0.041	−63.90151167	−1015822	7043
0.032	−61.32064878	−607882	−2631	.042	−64.23218690	−1061056	16013
.033	−61.57796683	−640603	−2956	.043	−64.57347268	−1089466	29007
.034	−61.84169091	−676284	−3310	.044	−64.92565313	−1088026	46249
.035	−62.11217783	−715271	−3654	.045	−65.28871383	−1039641	67094

TABLE 2 (*Continued*)

t	$B_{011}(t)$	δ^2	δ^4	t	$B_{011}(t)$	δ^2	δ^4
0.046	−65.66217095	−923852	89689	0.066	−67.91867853	6420178	−39783
.047	−66.04486658	−718709	110863	.067	−67.40653772	6018292	−24154
.048	−66.43474930	−403867	126434	.068	−66.83421399	5591764	−10927
.049	−66.82867070	35383	132018	.069	−66.20597261	5153808	−160
.050	−67.22223827	603971	124219	.070	−65.52619315	4715211	8258
				0.071	−64.79926159	4284433	14551
0.0500	−67.22223827	149069	7742	.072	−64.02948570	3867828	19004
.0505	−67.41716182	231926	7155	.073	−63.22103152	3469908	21921
.0510	−67.60976612	321892	6344	.074	−62.37787828	3093651	23599
.0515	−67.79915150	418160	5329	.075	−61.50378852	2740792	24312
0.0520	−67.98435528	519720	4136	0.076	−60.60229083	2412093	24296
.0525	−68.16436186	625389	2806	.077	−59.67667222	2107578	23750
.0530	−68.33811455	733845	1382	.078	−58.72997782	1826736	22838
.0535	−68.50452879	843673	−88	.079	−57.76501606	1568682	21687
.0540	−68.66250631	953414	−1557	.080	−56.78436747	1332283	20394
0.0545	−68.81094968	1061607	−2978	0.081	−55.79039606	1116264	19034
.0550	−68.94877698	1166841	−4312	.082	−54.78526200	919276	17660
.0555	−69.07493587	1267788	−5523	.083	−53.77093519	739952	16310
.0560	−69.18841688	1363242	−6586	.084	−52.74920886	576948	15009
.0565	−69.28826547	1452145	−7483	.085	−51.72171305	428966	13774
0.0570	−69.37359261	1533601	−8202	0.086	−50.68992758	294774	12613
.0575	−69.44358373	1606892	−8742	.087	−49.65519437	173212	11532
.0580	−69.49750593	1671478	−9105	.088	−48.61872905	63197	10531
.0585	−69.53471335	1726993	−9300	.089	−47.58163174	−36270	9608
.0590	−69.55465084	1773240	−9339	.090	−46.54489715	−126114	8761
0.0595	−69.55685594	1810177	−9237	0.091	−45.50942369	−207182	7985
.0600	−69.54095926	1837903	−9012	.092	−44.47602205	−280252	7277
				.093	−43.44542293	−346032	6630
				.094	−42.41828414	−405169	6041
0.060	−69.54095926	7342622	−144387	.095	−41.39519703	−458255	5505
0.061	−69.45384146	7458610	−132304	0.096	−40.37669248	−505826	5017
.062	−69.29213755	7443238	−115693	.097	−39.36324618	−548371	4573
.063	−69.05600127	7312698	−96611	.098	−38.35528359	−586335	4168
.064	−68.74673801	7085719	−76778	.099	−37.35318435	−620123	3801
.065	−68.36661756	6781859	−57521	.100	−36.35728633	−650104	3465

t	$B_{013}(t)$	δ^2	δ^4	t	$B_{013}(t)$	δ^2	δ^4
0.028	−73.12028739	−812184	−3800	0.0400	−77.75009965	−422901	2858
.029	−73.44733084	−857831	−4308	.0405	−77.98577289	−427722	3883
.030	−73.78295260	−907806	−4910	.0410	−78.22572336	−428626	5079
.031	−74.12765243	−962709	−5609	.0415	−78.46996009	−424419	6435
.032	−74.48197934	−1023238	−6401	.0420	−78.71844101	−413750	7924
0.033	−74.84653864	−1090169	−7222	0.0425	−78.97105943	−395140	9502
.034	−75.22199963	−1164281	−7894	.0430	−79.22762925	−367023	11108
.035	−75.60910343	−1246157	−8014	.0435	−79.48786930	−327810	12661
.036	−76.00866880	−1335749	−6804	.0440	−79.75138745	−275965	14070
.037	−76.42159166	−1431577	−2965	.0445	−80.01766525	−210103	15230
0.038	−76.84883029	−1529411	5420	0.0450	−80.28604407	−129084	16036
.039	−77.29136303	−1620389	20758	.0455	−80.55571374	−32121	16390
				.0460	−80.82570461	81123	16214
				.0465	−81.09488426	210462	15454
0.0390	−77.29136303	−405433	1313	.0470	−81.36195929	355132	14094
0.0395	−77.51865541	−415186	2005	0.0475	−81.62548300	513778	12152

TABLE 2 (*Continued*)

t	$Bo_{12}(t)$	δ^2	δ^4	t	$Bo_{12}(t)$	δ^2	δ^4
0.0480	−81.88386893	684470	9692	0.068	−75.37454332	4397549	47529
.0485	−82.13541015	864768	6809	.069	−74.21716655	3827973	47567
.0490	−82.37830369	1051813	3626	.070	−73.02151004	3305671	46221
.0495	−82.61067910	1242451	282	.071	−71.79279683	2829400	43983
.0500	−82.83062999	1433368	−3078	.072	−70.53578961	2397000	41220
0.0505	−83.03624720	1621231	−6318	0.073	−69.25481240	2005763	38201
.0510	−83.22565211	1802825	−9315	.074	−67.95377756	1652709	35110
.0515	−83.39702876	1975173	−11975	.075	−66.63621562	1334775	32071
.0520	−83.54865369	2135630	−14223	.076	−65.30530593	1048937	29163
.0525	−83.67892232	2281956	−16019	.077	−63.96390688	792297	26432
0.0530	−83.78637139	2412359	−17344	0.078	−62.61458485	562131	23900
.0535	−83.86969688	2525514	−18202	.079	−61.25964152	355907	21577
.0540	−83.92776723	2620557	−18618	.080	−59.90113912	171302	19458
.0545	−83.95963201	2697067	−18627	.081	−58.54092370	6196	17537
.0550	−83.96452612	2755023	−18277	.082	−57.18064633	−141335	15800
0.0555	−83.94186999	2794767	−17618	0.083	−55.82178230	−273031	14234
.0560	−83.89126621	2816945	−16705	.084	−54.46564858	−390460	12825
.0565	−83.81249297	2822460	−15591	.085	−53.11341946	−495034	11557
.0570	−83.70549514	2812414	−14329	.086	−51.76614068	−588025	10418
.0575	−83.57037317	2788061	−12965	.087	−50.42474215	−670574	9395
0.0580	−83.40737058	2750755	−11544	0.088	−49.09004937	−743707	8475
				.089	−47.76279365	−808345	7648
				.090	−46.44362138	−865318	6904
0.058	−83.40737058	10991480	−184794	.091	−45.13310230	−915372	6235
.059	−82.99933123	10563138	−138812	.092	−43.83173693	−959176	5632
0.060	−82.48566049	9995505	−95416	0.093	−42.53996333	−997336	5089
.061	−81.87203471	9331454	−57108	.094	−41.25816308	−1030396	4599
.062	−81.16509439	8609015	−25181	.095	−39.98666680	−1058846	4158
.063	−80.37206392	7860033	28	.096	−38.72575897	−1083129	3758
.064	−79.50043311	7109779	18863	.097	−37.47568243	−1103647	3397
0.065	−78.55770452	6377234	32081	0.098	−36.23664236	−1120759	3071
.066	−77.55120358	5675804	40625	.099	−35.00880988	−1134795	2776
.067	−76.48794461	5014231	45474	.100	−33.79232535	−1146048	2508
t	$Bo_{13}(t)$	δ^2	δ^4	t	$Bo_{13}(t)$	δ^2	δ^4
0.027	−86.87876135	−1214067	−7283	0.0390	−93.19200725	−642383	11936
.028	−87.31335328	−1291759	−8404	.0395	−93.52271860	−625137	15115
.029	−87.76086279	−1377901	−9751	.0400	−93.85968132	−592735	18506
.030	−88.22215132	−1473841	−11343	.0405	−94.20257140	−541820	21937
.031	−88.69817826	−1581152	−13122	.0410	−94.55087968	−469009	25179
0.032	−89.19001672	−1701545	−14810	0.0415	−94.90387805	−371115	27962
.033	−89.69887063	−1836529	−15637	.0420	−95.26058757	−245413	29996
.034	−90.22608983	−1986560	−13907	.0425	−95.61975123	−89926	31001
.035	−90.77317463	−2149247	−6477	.0430	−95.97981415	96303	30742
				.0435	−96.33891404	312986	29063
0.0350	−90.77317463	−537225	−381	0.0440	−96.69488406	558434	25918
.0355	−91.05467178	−558296	81	.0445	−97.04526975	829517	21385
.0360	−91.34175189	−579241	758	.0450	−97.38736027	1121743	15662
.0365	−91.63462441	−599372	1701	.0455	−97.71823336	1429452	9052
.0370	−91.93349065	−617737	2965	.0460	−98.03481193	1746106	1923
0.0375	−92.23853426	−633060	4598	0.0465	−98.33392945	2064657	−5326
.0380	−92.54990848	−643703	6634	.0470	−98.61240040	2377934	−12312
.0385	−92.86771973	−647627	9088	.0475	−98.86709201	2679021	−18697

TABLE 2 (*Continued*)

t	$B_{013}(t)$	δ^2	δ^{2*}	t	$B_{013}(t)$	δ^2	δ^{2*}
0.0480	−99.09499341	2961585	−24219	0.066	−84.79156871	3597857	74666
.0485	−99.29327896	3220144	−28698	.067	−83.15850583	2971198	68187
.0490	−99.45936308	3450236	−32040	.068	−81.49573096	2412718	61711
.0495	−99.59094482	3648526	−34227	.069	−79.80882891	1915999	55499
.0500	−99.68604132	3812815	−35305	.070	−78.10276687	1474862	49701
0.0505	−99.74300966	3942009	−35366	0.071	−76.38195621	1083522	44384
.0510	−99.76055791	4036020	−34536	.072	−74.65031033	736669	39567
.0515	−99.73774597	4095650	−32959	.073	−72.91129775	429483	35239
.0520	−99.67397752	4122444	−30788	.074	−71.16799035	157632	31372
.0525	−99.56898463	4118541	−28172	.075	−69.42310662	−82760	27929
0.0530	−99.42280633	4086530	−25254	0.076	−67.67905050	−295142	24871
.0535	−99.23576274	4029300	−22164	.077	−65.93794580	−482582	22158
.0540	−99.00842614	3949920	−19016	.078	−64.20166691	−647800	19752
.0545	−98.74159035	3851516	−15906	.079	−62.47186603	−793209	17619
.0550	−98.43623940	3737182	−12914	.080	−60.74999724	−920949	15726
0.0555	−98.09351662	3609899	−10098	0.081	−59.03733794	−1032919	14046
.0560	−97.71469486	3472473	−7505	.082	−57.33500782	−1130805	12553
.0565	−97.30114836	3327490	−5159	.083	−55.64398576	−1216103	11225
.0570	−96.85432697	3177294	−3079	.084	−53.96512473	−1290147	10043
.0575	−96.37573263	3023965	−1265	.085	−52.29916517	−1354121	8989
0.0580	−95.86689865	2869317	288	0.086	−50.64674682	−1409083	8049
.0585	−95.32937150	2714906	1592	.087	−49.00841929	−1455974	7209
.0590	−94.76469528	2562040	2666	.088	−47.38465151	−1495638	6458
.0595	−94.17439867	2411797	3529	.089	−45.77584011	−1528827	5786
.0600	−93.55998409	2265043	4205	.090	−44.18231699	−1556216	5184
0.0605	−92.92291907	2122460	4714	0.091	−42.60435602	−1578407	4644
.0610	−92.26462946	1984561	5082	.092	−41.04217913	−1595943	4159
.0615	−91.58649423	1851719	5327	.093	−39.49596166	−1609308	3724
.0620	−90.88984181	1724183	5471	.094	−37.96583727	−1618941	3332
				.095	−36.45190230	−1625233	2980
0.062	−90.88984181	6902184	87710	0.096	−34.95421966	−1628538	2663
.063	−89.44603233	5947633	88438	.097	−33.47282240	−1629174	2377
.064	−87.94274653	5080769	85633	.098	−32.00771688	−1627426	2119
.065	−86.38865303	4299082	80707	.099	−30.55888562	−1623554	1887
				.100	−29.12628990	−1617791	1677

t	$B_{014}(t)$	δ^2	δ^{2*}	t	$B_{014}(t)$	δ^2	δ^{2*}
0.025	−101.30409740	−1644407	−11366	0.0345	−107.37139628	−871710	2729
.026	−101.85129899	−1757942	−13259	.0350	−107.75962562	−902403	5215
.027	−102.41607998	−1884823	−15579	.0355	−108.15687900	−927712	8532
.028	−102.99970921	−2027389	−18427	.0360	−108.56340950	−944300	12772
.029	−103.60361234	−2188483	−21834	.0365	−108.97938300	−947924	17959
0.030	−104.22940030	−2371437	−25551	0.0370	−109.40483574	−933416	24015
.031	−104.87890263	−2579705	−28519	.0375	−109.83962264	−894762	30729
				.0380	−110.28335717	−825327	37731
				.0385	−110.73534496	−718217	44488
0.0310	−104.87890263	−644487	−1768	.0390	−111.19451493	−566812	50329
0.0315	−105.21318682	−673100	−1788	0.0395	−111.65935301	−365421	54511
.0320	−105.55420201	−703480	−1712	.0400	−112.12784531	−110007	56304
.0325	−105.90225200	−735540	−1486	.0405	−112.59743767	201105	55121
.0330	−106.25765740	−769039	−1034	.0410	−113.06501899	566664	50617
.0335	−106.62075319	−803505	−261	.0415	−113.52693367	982165	42783
0.0340	−106.99188403	−838141	949	0.0420	−113.97902669	1439848	31974

TABLE 2 (*Continued*)

t	$B_{01s}(t)$	δ^2	δ^4	t	$B_{01s}(t)$	δ^2	δ^4
0.0425	−114.41672124	1929039	18871	0.062	−98.13350366	4159602	114497
.0430	−114.83512539	2436822	4394	.063	−96.04389419	3321140	101883
.0435	−115.22916133	2948925	−10433	.064	−93.92107332	2584730	90139
.0440	−115.59370802	3450724	−24613	.065	−91.77240515	1938675	79474
.0445	−115.92374746	3928211	−37295	.066	−89.60435024	1372324	69938
0.0450	−116.21450480	4368834	−47844	0.067	−87.42257208	876135	61496
.0455	−116.46157379	4762126	−55869	.068	−85.23203258	441651	54069
.0460	−116.66102152	5100094	−61223	.069	−83.03707657	61426	47559
.0465	−116.80946831	5377374	−63956	.070	−80.84150630	−271071	41861
.0470	−116.90414135	5591193	−64278	.071	−78.64864674	−561559	36880
0.0475	−116.94290247	5741165	−62505	0.072	−76.46140277	−815037	32523
.0480	−116.92425195	5828986	−59013	.073	−74.28230916	−1035879	28710
.0485	−116.84731156	5858067	−54203	.074	−72.11357435	−1227913	25369
.0490	−116.71179050	5833138	−48469	.075	−69.95711866	−1394493	22438
.0495	−116.51793807	5759855	−42183	.076	−67.81460789	−1538561	19863
0.0500	−116.26648709	5644439	−35669	0.077	−65.68748273	−1662701	17598
.0505	−115.95859172	5493346	−29205	.078	−63.57698459	−1769188	15601
.0510	−115.59576288	5312995	−23010	.079	−61.48417833	−1860026	13839
.0515	−115.17980410	5109546	−17251	.080	−59.40997232	−1936982	12282
.0520	−114.71274985	4888735	−12037	.081	−57.35513615	−2001619	10904
0.0525	−114.19680825	4655762	−7434	0.082	−55.32031616	−2055320	9682
.0530	−113.63430903	4415225	−3466	.083	−53.30604938	−2099311	8598
.0535	−113.02765756	4171092	−125	.084	−51.31277571	−2134678	7635
.0540	−112.37929518	3926712	2620	.085	−49.34084881	−2162388	6779
.0545	−111.69166567	3684839	4816	.086	−47.39054579	−2183299	6016
0.0550	−110.96718777	3447679	6521	0.087	−45.46207576	−2198177	5336
.0555	−110.20823308	3216953	7797	.088	−43.55558751	−2207704	4730
.0560	−109.41710886	2993948	8707	.089	−41.67117630	−2212487	4189
.0565	−108.59604516	2779585	9307	.090	−39.80888996	−2213070	3705
.0570	−107.74718562	2574477	9655	.091	−37.96873432	−2209938	3272
0.0575	−106.87258130	2378982	9798	0.092	−36.15067806	−2203523	2885
.0580	−105.97418715	2193252	9781	.093	−34.35465703	−2194215	2539
.0585	−105.05386050	2017276	9639	.094	−32.58057815	−2182361	2229
.0590	−104.11336108	1850920	9403	.095	−30.82832288	−2168271	1951
				.096	−29.09775032	−2152225	1702
0.059	−104.11336108	7413070	150624	0.097	−27.38870001	−2134471	1478
.060	−102.17840430	6193041	140062	.098	−25.70099441	−2115235	1278
.061	−100.18151711	5112626	127517	.099	−24.03444116	−2094717	1098
				.100	−22.38883508	−2073097	937
t	$B_{01s}(t)$	δ^2	δ^4	t	$B_{01s}(t)$	δ^2	δ^4
0.021	−115.37522442	−1873431	−12190	0.0300	−121.91125518	−950918	−3174
.022	−116.00559855	−1999276	−14122	.0305	−122.34596066	−998951	−3049
.023	−116.65596543	−2139333	−16481	.0310	−122.79065566	−1049965	−2602
.024	−117.32772565	−2295985	−19381	.0315	−123.24585029	−1103475	−1657
.025	−118.02244572	−2472166	−22989	.0320	−123.71207968	−1158488	23
0.026	−118.74188746	−2671526	−27523	0.0325	−124.18989393	−1213264	2726
.027	−119.48804445	−2898635	−33213	.0330	−124.67984084	−1265038	6772
.028	−120.26318780	−3159160	−40110	.0335	−125.18243812	−1309697	12488
.029	−121.06992276	−3459746	−47378	.0340	−125.69813237	−1341474	20135
				.0345	−126.22724136	−1352702	29837
0.0290	−121.06992276	−864204	−2942	0.0350	−126.76987737	−1333709	41466
.0295	−121.48605888	−906017	−3109	.0355	−127.32585047	−1272966	54550

TABLE 2 (*Continued*)

t	$B_{018}(t)$	δ^2	δ^4	t	$B_{018}(t)$	δ^2	δ^4
0.0360	−127.89455322	−1157576	68184	0.057	−116.10010101	6616027	201004
.0365	−128.47483174	−974181	81026	.058	−113.55371568	5272839	176777
.0370	−129.06485206	−710278	91385	.059	−110.95460197	4106766	154352
.0375	−129.66197516	−355875	97433	.060	−108.31442060	3095506	134244
.0380	−130.26265701	94751	97525	.061	−105.64328416	2218978	116545
0.0385	−130.86239135	641476	90557	0.062	−102.94995795	1459466	101145
.0390	−131.45571093	1277282	76262	.063	−100.24203708	801526	87812
.0395	−132.03625768	1988020	55362	.064	−97.52610095	231778	76319
.0400	−132.59692424	2753117	29485	.065	−94.80784704	−261322	66412
.0405	−133.13005962	3547148	899	.066	−92.09220636	−687726	57874
0.0410	−133.62772353	4342030	−27889	0.067	−89.38344293	−1056012	50507
.0415	−134.08196713	5109448	−54530	.068	−86.68523962	−1373583	44140
.0420	−134.48511625	5823143	−77150	.069	−84.00077214	−1646836	38627
.0425	−134.83003395	6460747	−94514	.070	−81.33277302	−1881310	33845
.0430	−135.11034417	7005020	−106050	.071	−78.68358699	−2081809	29687
0.0435	−135.32060420	7444425	−111777	0.072	−76.05521905	−2252509	26066
.0440	−135.45641997	7773146	−112164	.073	−73.44937620	−2397047	22904
.0445	−135.51450429	7990640	−107988	.074	−70.86750382	−2518599	20141
.0450	−135.49268221	8100891	−100194	.075	−68.31081742	−2619938	17719
.0455	−135.38985122	8111491	−89786	.076	−65.78033041	−2703497	15594
0.0460	−135.20590531	8032648	−77736	0.077	−63.27687838	−2771409	13726
.0465	−134.94163293	7876232	−64925	.078	−60.80114043	−2825548	12083
.0470	−134.59859823	7654900	−52096	.079	−58.35365796	−2867563	10634
.0475	−134.17901453	7381362	−39837	.080	−55.93485112	−2898909	9356
.0480	−133.68561721	7067788	−28573	.081	−53.54503336	−2920868	8226
0.0485	−133.12154201	6725384	−18573	0.082	−51.18442429	−2934575	7226
.0490	−132.49021297	6364122	−9975	.083	−48.85316096	−2941032	6342
.0495	−131.79524272	5992592	−2804	.084	−46.55130795	−2941126	5558
.0500	−131.04034654	5617978	2996	.085	−44.27886621	−2935645	4862
.0505	−130.22927059	5246100	7535	.086	−42.03578091	−2925285	4245
0.0510	−129.36573364	4881527	10959	0.087	−39.82194845	−2910665	3697
.0515	−128.45338142	4527715	13425	.088	−37.63722264	−2892336	3210
.0520	−127.49575205	4187162	15091	.089	−35.48142020	−2870785	2777
.0525	−126.49625107	3861565	16107	.090	−33.35432560	−2846447	2393
.0530	−125.45813444	3551967	16606	.091	−31.25569546	−2819707	2050
0.0535	−124.38449814	3258892	16706	0.092	−29.18526240	−2790910	1746
.0540	−123.27827293	2982461	16506	.093	−27.14273844	−2760359	1475
.0545	−122.14222310	2722489	16086	.094	−25.12781808	−2728328	1234
.0550	−120.97894839	2478572	15513	.095	−23.14018099	−2695057	1020
.0555	−119.79088795	2250146	14838	.096	−21.17949447	−2660762	829
0.0560	−118.58032606	2036544	14102	0.097	−19.24541557	−2625632	660
				.098	−17.33759299	−2589839	510
				.099	−15.45566881	−2553533	376
0.056	−118.58032606	8160273	225765	.100	−13.59927996	−2516848	258

BOTANY.—*Notes on Brazilian phanerogams.* LYMAN B. SMITH, Department of Botany, U. S. National Museum.

(Received March 31, 1955)

The following miscellany is the result of studies toward the identification of various collections of Brazilian phanerogams. In some instances I have had the advice of specialists as noted below. Dr. John D. Dwyer of St. Louis University has kindly consented to publish his new species of *Luxemburgia* here in order to facilitate early use of the name.

Family POLYGONACEAE

Coccoloba rubra L. B. Smith, sp. nov.

FIGS. 1–4

Imperfecte solum cognita sed verisimiliter arbor parva; ramulis 3–4 mm diametro, glabris, leviter striatis, lenticellis ellipticis; ochreis oblique truncatis, 10 mm longis, paulo divergentibus, basi herbaceis, apice tenuioribus; petiolis supra canaliculatis, ad 2 cm longis, glabris, ad ⅓ altitudinis ochreae insertis; foliorum laminis obovatis, emarginatis, basi rotundatis vel subtruncatis, 16 cm longis, 12 cm latis, tenuiter coriaceis, plus minusve bullata, supra glabra, subtus ad nervos puberulis, nervulis utrinque prominulis, inflorescentia terminale in ramulis lateralibus brevibus, racemosa, solitaria, laxiflora, 20 cm longa, pedunculo ca. 1 cm longo, rhachi 2 mm diametro, sulcata, glabra, nodulis 1-floris sed saepe aggregatis; bracteis late ellipticis, quam pedicellis subduplo brevioribus, membranaceis; ochreolis bracteas simulantibus sed latioribus; pedicellis gracilibus, 3.5 mm longis; floribus 4 mm longis; tubo perianthii late obconico, 1.5 mm longo, lobis late ellipticis, obtusis; staminibus forsan juvenilibus profunde inclusis; ovario ovoideo, stylis 3, brevibus; fructu ignoto.

Type in the U. S. National Herbarium, no. 2120041, collected in Mata do Hoffmann (Hoffmann's woods), Brusque, Santa Catarina, Brazil, November 21, 1951, by Roberto Klein (Instituto de Malariologia no. 33).

In Lindau's "Monographia generis Coccolobae" (Bot. Jahrb. **13:** 106–229. 1891), this species would fall next to *C. schwackeana* in the key. However, unlike that species, its large leaves are emarginate at the apex and merely rounded or truncate at the base. Also the inflorescence is about twice as long as that of *C. schwackeana*.

Family CONNARACEAE

Connarus rostratus (Vell.) L. B. Smith, comb. nov.

Canicidia rostrata Vell. Fl. Flum. 184. 1825; Icon. **4:** *pl. 139.* 1835.
Connarus marginatus Planch. Linnaea **23:** 429. 1850.
Connarus cymosus Planch. op. cit. 430.
Connarus beyrichii Planch. loc. cit.

Neotype in the U. S. National Herbarium, no. 282298, collected by F. Sellow in Brazil without further locality.

The above type has been selected because, of the material available, it most nearly resembles the illustration in Vellozo's Icones, both in the form of the leaflets and in the much branched inflorescence.

In view of the variation in a single collection, Planchon's species do not appear to be more than forms.

Family MALPIGHIACEAE

Heteropteris ocellata L. B. Smith, sp. nov.

FIGS. 5–9

Frutex erectus; ramulis teretibus, gracilibus, novellis ferrugineo-velutinis, mox glabratis, griseis, lenticellis minimis notatis, internodiis 3–6 cm longis; foliis oppositis, petiolis ad 5 mm longis, basi biglandulosis, laminis late ellipticis vel elliptico-obovatis, acutis cuspidatisque, basi rotundatis, ad 14.5 cm longis, 7.5 cm latis, subcoriaceis, margine integerrimis, supra sparse albido-pilosis, subtus ferrugineo-velutinis et basi glandulosis, utrinque glabratis, biglandulosis; inflorescentiis axillaribus vel in ramulis 4-foliatis terminalibus, anguste pyramidatis, 14 cm longis, 6 cm diametro, ferrugineo-velutinis, umbellis 3-floris sed saepe aggregatis, bracteis ovatis, 3 mm longis, glandulis 2 orbicularibus ocellatis; pedunculis floriferis gracilibus, ad 5 mm longis; bracteolis parvis, ellipticis, eglandulosis; pedicellis gracilibus, ad 8 mm longis; sepalis erectis vel leviter incurvatis, ovatis, obtusis, 3.5 mm longis, glandulis calycinis 8 (sepalo unico nudo), oblongis; petalis luteis, ad 8 mm longis, margine subintegris; staminibus paulo inaequalibus, glaberrimis; stylis gracilibus, dorso apicis plus minusve angulatis; samaris late obliquo-obovatis, 25–30 mm longis, brunneo-alutaceis, puberulis,

margine superiore basi in appendiculam parvam producto, nuce obscura, obtuso-conoidea, crasse nervata sed sine alulis, areola applicatoria fere total faciem ventralem orbicularem occupante.

Type in the U. S. National Herbarium, no. 1997224, collected in campo, Município Ituiutaba, Minas Gerais, Brazil, June 29, 1950, by Amaro Macedo (no. 2445).

This species appears to be related to *Heteropteris catingarum* Juss. and *H. leschenaultiana* Juss. Unlike the former it has its pedicels articulated at the ends of slender peduncles, and differs from the latter in the dense subpersistent indument and two basal glands on the underside of the leaves and the elongate inflorescences.

Banisteriopsis macedoana L. B. Smith, sp. nov. FIGS. 10–12

Frutex erectus; ramis teretibus, gracillimis, glabris, rubiginosis sublucidisque, internodiis ca. 15 mm longis; foliis oppositis, graciliter ad 5 mm petiolatis, lineari-lanceolatis, cuneatis, longe acuminatis, 45 mm longis, 5 mm latis, margine integerrimis supra fuscentiis, glabris, ex sicco lineato-rugosis, subtus viridibus, primo pube sparse vestitis, mox glabratis, biglandulosis; ramulis axillaribus 6-folioliferis, sparse pubescentibus, umbellis 2–3-flores vel flore unico terminatis; bracteolis lanceolatis, 1.5 mm longis; pedicellis gracillimis, ad apicem versus haud incrassatis, 12 mm longis, glabratis, floribus 12–14 mm diametro; sepalis ovatis, acutis, 3 mm longis, ferrugineo-tomentosis, glandulis calycinis 8 (sepalo unico nudo), oblongis, 2 mm longis; petalis roseis, valde inaequalibus; staminibus haud exsertis, filamentis 1.5 mm longis, alvo-pubescentibus, antherarum loculis pilosis, connectivo nullo modo producto; stylis aequalibus, apice incrassatis; samaris usque 24 mm longis, ferrugineo-pubescentibus, nuce cristis parvis lateralibus ornata, ala falcato-elliptica, 10 mm lata.

Type in the U. S. National Herbarium, nos. 2046573 and 2046574, collected in chapada (brushy field), near Kilometer 210 along the highway from São Paulo to Cuiabá, Município of Cruz Verde, Minas Gerais, Brazil, June 28, 1951, by Amaro Macedo (no. 3226).

In Niedenzu's Monograph of the Malpighiaceae in the Pflanzenreich (IV. **141:** 1–870. 1928), this species would fall next to *Banisteria stellaris* Griseb. However, it differs in its shrubby habit, and in its narrow acuminate cuneate biglandular leaves.

In using the generic name *Banisteriopsis* I am following the interpretation of C. V. Morton that *Banisteria*, being made a nomen rejiciendum by the conservation of *Heteropteris*, is thereby barred from any other use.

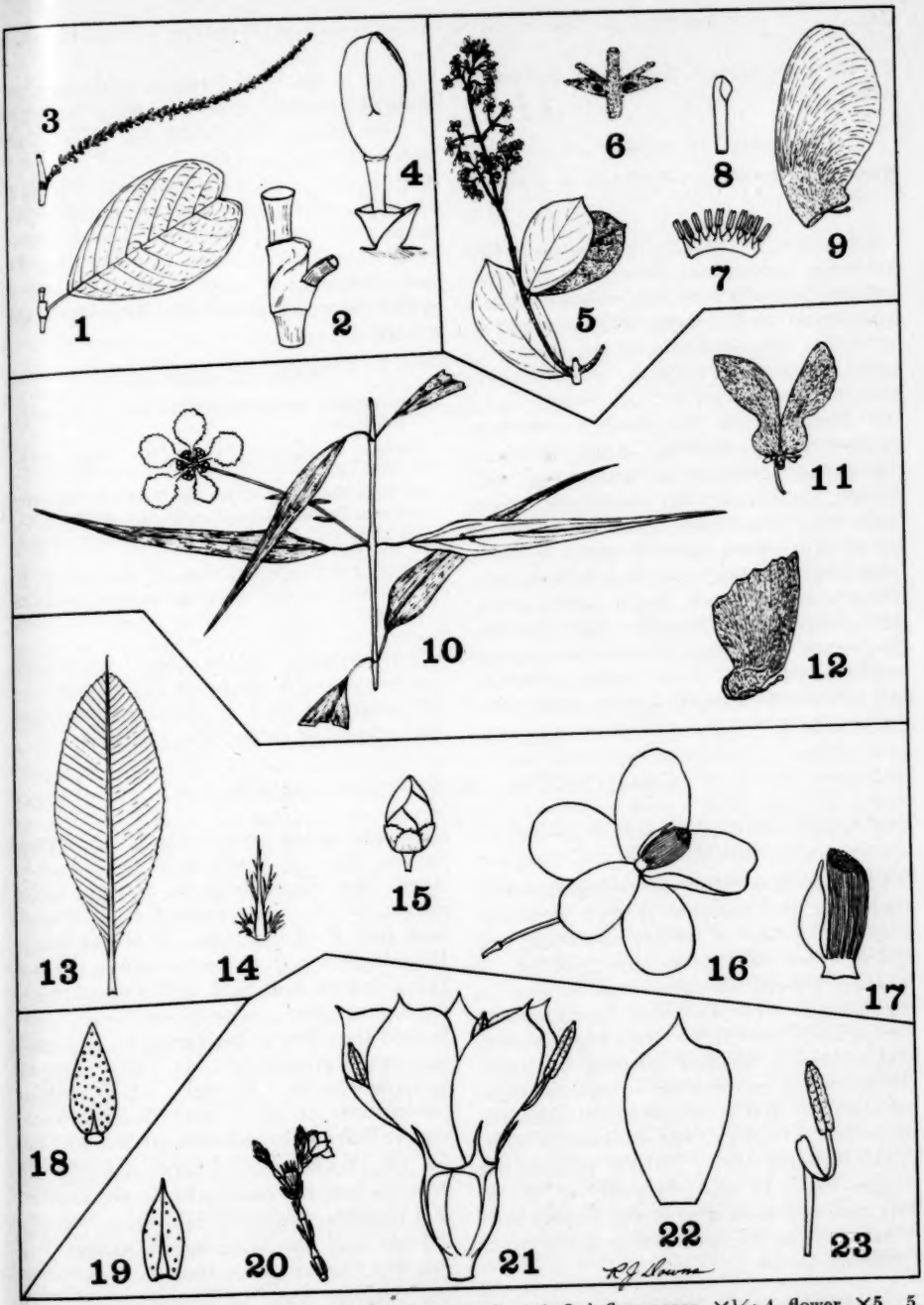
Family OCHNACEAE

Luxemburgia macedoi Dwyer, sp. nov. FIGS. 13–17

Arbusta; folia crebra apice ramulorum, stipulis saepe persistentibus lineari-subulatis, ad 0.4 cm longis, ciliis laxis ad subrectis paucis aut multis villosisque saepe arborescentibus ad 1.0 cm longis, petiolis glabris sublatis ad 0.7 cm longis, laminis glabris gracili-coriaceis oblongis, ad 9 cm longis, ad 3.5 cm latis, apice subobtusis (rare subtruncatis) solitario cilio ad 0.5 cm longo, basi attenuatis costa utrinque prominente venis prominulis (eis in medio ad 0.2 cm distantibus) marginibus vix serrulatis dentibus (praeter cilia pauca basi) subfalcatis aut uncinatisque, 0.3–0.5 mm longis; flores in racemis dispositi, rhachidibus glabris gracilibus superiora folia excedentibus, pedicellis gracilibus in medio circ. 0.5 mm latis, ascendentibus, ad 2.5 cm longis, locis articulationis a basi ad 0.5–4.5 cm extendentibus, bracteolis basalibus plerumque persistentibus lineari-oblongis, ad 0.5 cm longis, ad 0.12 cm latis, ciliis laxis distantibus (eis basi subfimbricatis), ad 0.9 mm longis; gemmae ovatae, ad 1.1 cm longae, sepalis anthesi laxis imbricatis inaequalibus subrotundis oblongis ad 4-5 mm latis, apicibus obtusis marginibus tenuibus irregularibus ciliis apice diffusis, petalis flavis, oblongis, ad 1.5 cm longis, ad 1.0 cm latis; staminibus ± 60 antheris subsessilibus, 0.5–0.6 cm longis, ovariis coriaceis substipitatis, oblongis, ad 0.7 cm longis, stylibus ad 2 mm longis, capsulis lignosis sublaevibus turgidis circ. 1.0 cm longis, pedicellis gracilibus, ad 2.5 cm longis.

Type in the U. S. National Herbarium, no. 2059866, collected in campo on the slopes of the Serra dos Pireneos, Município of Corumbá, Goiás, Brazil, December 18, 1951, by Amaro Macedo (no. 3536).

Luxemburgia macedoi, named in honor of its collector, is apparently the first species of the genus to be described from the State of Goiás. It is readily placed in the *Petiolatae* section of the genus and is obviously related to *L. polyandra* St. Hil. Its much larger flowers borne on pedicels with obvious articulation stalks, readily distinguish it from *L. polyandra*. Of all species of *Luxemburgia* known from flowering material



FIGS. 1–23.—1, *Coccoloba rubra*, leaf, ×½; 2, stipule, ×1; 3, inflorescence, ×½; 4, flower, ×5. 5, *Heteropteris ocellata*, branch, ×½; 6, bracts, ×1; 7, stamens, ×2; 8, style, ×5; 9, samara, ×1. 10. *Luxemburgia macedoi*, leaf, ×½; 11, samaras, ×1; 12, base of samara, ×2. 13. *Banisteriopsis macedoana*, section of branch, ×1; 14, stipule, ×5; 15, flower bud, ×1; 16, flower, ×1; 17, pistil and androecium, ×2. 18, *Microlicia lutea*, leaf, ×2. 19, *Microlicia macedoi*, leaf, ×2; 20, apex of branch, ×1; 21, flower, ×5; 22, petal, ×5; 23, stamen, ×5.

L. macedoi possesses the largest number of stamens.

Family MELASTOMACEAE

Microlicia macedoi L. B. Smith & Wurdack, sp. nov.

FIGS. 19–23

Fruticulosa, 28 cm alta et ultra, fastigiatim dichotome ramosissima, glaberrima, glutinosa; caule erecto, gracili, tereti, inferne non articulato; ramis erectis vel divaricatis, distincte articulatis, tetragonis; foliis sessilibus, strictis, subapproximatis, carnosulis rigidisque, ovato-oblongis, subacutis, haud pungentiis, basi cordatis, ad 4.5 mm longis integris vel levissime crenulatis, utrinque pallide viridibus, sparse pallideque glanduloso-punctatis, nervo mediano basi valde dilatato; floribus breviter pedicellatis; calyce viride, tubo subturbinato, 2 mm longo, superne non setoso, 5-costato, segmentis erectis, subulatis, 1 mm longis, basi valde remotis; petalis obovato-oblongis, acutis, 5 mm longis, fulgide aureis; staminibus distincte inaequalibus, antheris oblongis, aureis, margine undulatis, apice longe rostellatis, majoribus 2 mm longis, connectivo basi valde dilatato; capsula globosa, laeve, calyce persistente vestita.

Type in the U. S. National Herbarium, no. 2059764, collected in the mountains, Municipio of Niquelândia, Goiás, Brazil, July 24, 1952, by Amaro Macedo (no. 3636).

Its bright yellow petals distinguish *Microlicia macedoi* from all but a very few species in the genus, and of these it resembles *M. lutea* Markgraf (Fig. 18) much more closely than any other. Its main distinction is in its leaves which have a sparser paler punctation and a base enclosing the pulvinus.

Family GESNERIACEAE

Rechsteineria macrostachya (Lindl.) L. B. Smith, comb. nov.

Gesnera macrostachya Lindl. Bot. Reg. **14**: *pl. 1202*. 1828.

Gesnera latifolia Mart. in Otto & Schlecht. Verh. Preuss. Gart.-Ver. **5**: 219, *pl. 1*. 1829.

Rechsteineria latifolia O. Kuntze, Rev. Gen. **2**: 474. 1891.

Corytholoma latifolium Fritsch, Bihang till K. Sv. Vet. Akad. Handl. **24**: Afd. 3, no. 5: 22. 1898.

The necessity of the above combination became evident in the course of checking some bibliography for Dr. F. C. Hoehne's treatment of the Gesneriaceae for the "Flora Brasilica."

WASHINGTON SCIENTIFIC NEWS

INSULATING SEAL FOR HIGH-PRESSURE EQUIPMENT

In connection with work on high-pressure standards, the National Bureau of Standards has devised a special insulating seal which effectively solves the problem of leakage around electrical connections to high-pressure vessels. Simply constructed of inexpensive materials, the high-pressure seal utilizes a sapphire bushing to obtain the necessary combination of high mechanical strength and good electrical insulating properties. The device has successfully withstood pressure up to 170,000 pounds per square inch. It was designed by H. A. Bowman and associates of the Bureau staff working under the sponsorship of the Army Ordnance Corps.

HIGH-SCHOOL SCIENCE FAIR

Two high-school seniors from the Washington metropolitan area won a trip to Cleveland as top prize in the Ninth Annual Science Fair of Washington, held late in April. The trip enabled the winners, Bette Coder, 17, of Northwestern High School, and Joel F. Lubar, 16, of Montgomery-Blair High School, to participate in the National Science Fair held in Cleveland in the middle of May. Miss Coder's entry exhibited the effect of pregnancy on mammallary cancer in mice, and Mr. Lubar's was an astrophotoscope, through which stellar photographs could be studied. The Washington Fair, with over 600 entries, was run by the Washington Junior Academy of Sciences and was sponsored by the District of Columbia Board of Education, Science Service, and the Washington Academy of Sciences. As we go to press, Circus Saints and Sinners, the Montgomery-Blair High School Student Council, the Washington Audio Society, and John P. Gilliland have contributed toward the cost of the trip.